Bias in supervision

a social psychological perspective on regulatory decision-making

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(met een samenvatting in het Nederlands)

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Contents

Chapter 1

General introduction: A social psychological approach to examine regulatory decision-making

By monitoring whether individuals, organisations, and markets act in accordance with the law and the public interest, supervisory bodies aim to prevent harm to society. The term 'supervisory bodies' refers to regulatory agencies (e.g., market authorities, inspectorates) that monitor and oversee compliance with a specific regulation. Their goal is to detect illegal and unethical behaviour, such as financial fraud, as well as identifying risks associated with particular products or services that may cause harm to consumers or society as a whole. In order to foster intrinsic motivation to comply with the rules and act ethically, supervisory bodies often seek continuous and constructive dialogue with supervised entities. However, in cases of non-compliance, supervisory bodies are mandated to impose sanctions, such as warnings and fines. As these measures can affect the continuity of businesses and markets, it is crucial that supervisory bodies make informed decisions about which measure to impose. Although careful deliberation is required, supervisory bodies might also need to reach a decision and intervene in a timely way, before further social damage is done.

Prior incidents and scandals that have emerged in regulated organisations and markets illustrate the challenges supervisory bodies face in taking the right action at the right time (Viñals et al., 2010). Politicians and journalists frequently blame supervisory bodies for not having acted sooner or more firmly. For example, the Office of Investigations (2009) criticised the U.S. Securities and Exchange Commission (SEC) for their failure to uncover Bernie Madoff's Ponzi scheme. This particular investment fraud—in which client funds were not invested but used to pay new clients—resulted in a total loss of 61 billion dollars for Madoff's clients. The Office of Investigations (2009) revealed that the SEC did not follow up on alarming signals brought to their attention by an employee of a registered hedge fund. This neglect enabled Madoff to continue his extensive fraud for years before he was arrested. Thus, even though the SEC was informed about urgent matters, they decided not to act until it was too late. The public disbelief about the SEC's flawed decision-making is illustrated by the strong words of U.S. Representative Gary Ackerman in response to the SEC's enforcement director during the U.S. congressional hearing:

'I really don't understand what is going on. The previous witness said that you guys [the SEC] as an Agency act like you are deaf, dumb, and blind. […] I figured you would leave your blindfolds and your duct tape and your earplugs behind, but you seem to be wearing them today. […] You said your mission was to protect investors and detect fraud quickly. How did that work out? What went wrong? It seems to me [that] one guy with a few friends and helpers discovered this thing

nearly a decade ago, led you to this pile of dung that is Bernie Madoff, and stuck your nose in it, and you couldn't figure it out. You couldn't find your backside with two hands if the lights were on.' (U.S. House Committee on Financial Services, 2009, p. 65)

The Madoff case might seem somewhat outdated; however, in my opinion, it is relevant to incidents and scandals that occur throughout the world today. In fact, the recent scandal at Wirecard, a German payment processor, shows many similarities to the Madoff scandal in how it was handled by supervisory bodies. In both cases, alarming signals indicated fraudulent behaviour, but the supervisory body did not act upon them. In 2020, Wirecard announced that 1.9 billion euros in cash were missing. As a consequence, the company was declared insolvent, owing almost 4 billion euros to its creditors. Somewhat later, Wirecard's CEO Markus Braun was arrested for fraud and embezzlement. The German Federal Financial Supervisory Authority (BaFin) was made aware of potential fraud years earlier. For example, in 2015, the *Financial Times* had already revealed irregularities in Wirecard's books (McCrum, 2020). Thus, in both the Madoff and Wirecard cases, the supervisory body apparently decided not to intervene, despite various alarming signals that they had received.

Although these examples may suggest that scandals are particularly prevalent in the financial sector, similar problems have occurred in other industries under the 'watchful eye' of supervisory bodies. Examples include the 2013 horse meat scandal in Europe and the 2015 Volkswagen emission scandal in the U.S. In retrospect, these high-profile and widely publicised cases all indicated the need for more immediate action by supervisory bodies, as their inaction had adversely impacted individual consumers and investors—not to mention markets and society as a whole. It is important to note that the circumstances in which supervisory bodies reach their decisions are multifaceted, uncertain, and dynamic (Van Erp, 2019). For example, the public opinion on particular matters can change over time, which can strongly influence the prioritisation decisions made by supervisory bodies (Braun, 2012). It could be that decisions made as to whether or not to intervene were considered appropriate at the time and were only later perceived as inadequate to prevent harm to society. However, as these prior cases all pointed to the reluctance of supervisory bodies to act upon alarming signals, the question remains: what had hindered informed and timely decision-making if it was not the availability of information?

Human flaws in regulatory decision-making

Prior incidents and scandals have indicated that the availability of information is not in itself a guarantee that supervisory bodies will make informed and timely decisions. Although alarming signals were brought to their attention, supervisory bodies decided not to act. This might suggest that *supervisory officers* who work at these institutions are not always successful in correctly interpreting the information that is available to them and then taking the appropriate action. From a psychological perspective, one explanation is that even well-trained and experienced professionals, such as supervisory officers, are 'only human' and, like others, not fully rational and objective when making decisions (Jansen & Aelen, 2015).

Numerous scientific studies have demonstrated that human beings are susceptible to *cognitive biases* when processing information and making decisions (Kahneman, 2011). Cognitive biases are systematic errors in decision-making that occur when individuals are influenced by their personal values and beliefs (Tversky & Kahneman, 1974). Although cognitive biases are helpful in daily life to make quick interpretations of the world around us, they sometimes lead to suboptimal decisions. To date, more than 180 biases have been identified that can negatively impact the quality of decision-making (Lilienfeld et al., 2009). For example, *confirmation bias* refers to the human tendency to favour information that confirms one's existing ideas and to ignore conflicting evidence. Another example is *information bias,* which refers to the tendency to keep searching for more information even when it does not affect the decision to be made or action to be taken. These and other cognitive biases may adversely impact the quality of regulatory decision-making. *Regulatory decision-making* is here defined as 'collecting information on whether an act or matter satisfies the relevant requirements, followed by forming an opinion and, if necessary, taking a measure' (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2001, p. 13).

A growing number of governments, such as in the Netherlands, the United Kingdom and Australia, emphasise the need to examine regulatory decision-making as a first step to increasing the effectiveness of supervisory bodies. For example, in the Netherlands, the Scientific Council for Government Policy has put 'reflective supervision' on their political agenda (WRR, 2016); moreover, Dutch universities have placed 'biases in regulatory decision-making' as a relevant research topic on their scientific agenda (Van Erp & Van der Steen, 2018). Investigations so far have primarily addressed regulatory decision-making in response to specific incidents and scandals via qualitative case studies such as

the Madoff case described above (Ottow, 2015a). On the one hand, this approach helps stakeholders to assign liability and punishment and to learn from 'what went wrong' in a particular case in order to prevent it from happening again. On the other hand, merely looking at past conduct increases the risk of *hindsight bias* and mainly provides anecdotal evidence that is often not generalisable to other regulatory contexts. Less effort has been made to gain systematic insight into regulatory decision-making by examining basic *psychological processes* that more structurally impact the decision-making of supervisory officers in various contexts.

Over the past decade, it has become more commonly accepted that laws, structures, and procedures alone are insufficient to steer human behaviour and prevent incidents and scandals (Ellemers, 2017; Scholten & Ellemers, 2016; Van Steenbergen & Ellemers, 2021). As a result, supervisory bodies increasingly undertake efforts to gain insight into behavioural risks that affect the decision-making of regulated organisations (Feitsma & Schillemans, 2019). For example, in response to the global financial crisis of 2008, the Dutch Central Bank has developed an innovative supervisory approach to monitor behaviour and culture risks, such as dominant chairmanship and a lack of countervailing power (DNB, 2015). Even though supervisory bodies have become more critical of the decision-making of supervised entities, most supervisory bodies do not invest in efforts to scrutinise which behavioural risks impact their own decision-making. In the scientific literature to date, psychological research on the decision-making of supervisory bodies is relatively scarce, even though their decision-making can sometimes have impactful consequences for organisations and society at large (Van Steenbergen, 2021). As a result, little is known about the psychological processes that may influence the decision-making of supervisory officers, such as the impact of biases.

A social psychological approach to examine regulatory decision-making

The aim of this dissertation is twofold. First, the aim is to examine the extent to which supervisory officers are aware of and affected by biases in decision-making. Second, the aim is to test strategies to improve their decision-making in order to reach informed and timely decisions. These aims are examined by taking a novel social psychological approach. *Social psychology* is the scientific study of how the thoughts, feelings, and behaviours of individuals are influenced by factors in the social context, such as the behaviour of others (Allport, 1968). According to social psychological theory and research, the decision-making of individuals should not

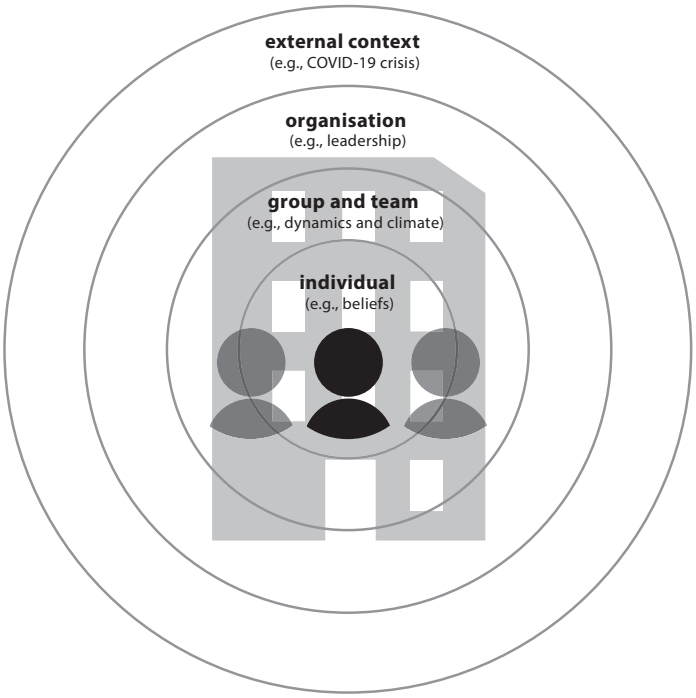
be examined in a vacuum but should be considered as part of a system in which these individuals are embedded on a day-to-day basis (Ellemers, 2012; Ellemers et al., 1999).

As illustrated in Figure 1, this dissertation investigates the extent to which individual supervisory officers are influenced by their own beliefs, but also by their group members, the social climate within their team, and the leadership of their team that is part of an organisation. This means that regulatory decision-making will be examined at both the individual and group-level. As supervisory officers make decisions mostly in groups, this may produce a clearer understanding of psychological processes that influence the decision-making of supervisory officers. Moreover, at the individual and group-level, I test various strategies that aim to improve regulatory decision-making in several ways, namely by (a) presenting information about bias to increase the awareness of individuals, (b) providing practical tools to mitigate bias in group decision-making, and (c) promoting reflectiveness and decisiveness to improve the joint decision-making of supervisory teams. This approach may provide leaders with more guidance on how they can best support supervisory officers in making informed and timely decisions, thus improving regulatory decision-making. Furthermore, in this dissertation, I also examine the impact of the first peak of the COVID-19 crisis that suddenly forced people to start working from home. Working apart from one's co-workers potentially hindered supervisory officers from optimally sharing information and perspectives with one another and making informed and timely decisions together. Accordingly, the findings of this dissertation may also be relevant for decision-making in difficult and uncertain circumstances, such as during the COVID-19 crisis.

To examine the aims described above, this dissertation takes a multi-method approach with a primary focus on questionnaire studies and field experiments. These quantitative research methods are typical for social psychology and have become increasingly common in law and public administration research (Hansen & Tummers, 2020; Van den Bos & Hulst, 2016). Questionnaire studies allow researchers to examine interrelationships between predictor and outcome variables, and field experiments enable researchers to establish cause-and-effect relationships. These methods also provide the opportunity to operationalise abstract concepts. For example, in organisational practice, it is difficult to define and measure 'decision quality', as there is often not one optimal solution (Amason, 1996). However, particular experimental designs allow researchers to objectively measure decision quality. For example, the *hidden-profile paradigm* that is used

in this dissertation provides one best decision alternative that indicates a high-quality decision. In addition to questionnaire studies and field experiments, I include observations from in-depth interviews with subject matter experts from science and practice as well as managers and supervisory officers from a particular supervisory authority. This combination of methods made it possible to develop research questions that are directly relevant for supervisory practice (i.e., via in-depth interviews), explore psychological processes that potentially influence regulatory decision-making (i.e., via questionnaires), and test the effectiveness of widely used strategies for increasing awareness and decision quality (i.e., via field experiments).

Figure 1. A social psychological approach to examine regulatory decision-making



Furthermore, all studies that are described in this dissertation were performed among supervisory officers who work at supervisory bodies in the Netherlands. This increases the relevance of this dissertation for supervisory practice, as the results speak directly to the decision-making of supervisory officers themselves. As most psychological research to date has been performed among student samples, it is not yet clear whether the findings of these prior studies are also applicable to more experienced professionals (Schulz-Hardt & Mojzisch,

2012). Therefore, conducting all studies among well-trained and experienced supervisory officers contributes to science by narrowing this research-to-practice gap. By seeking collaboration with professional associations in supervisory practice, most of the studies reported in this dissertation were performed during professional conferences and workshops. Organising these events and presenting the data that were collected before or during these events was a labour-intensive but effective strategy for collecting data among and connecting with supervisory officers. For example, I organised a series of workshops at different locations in the Netherlands, where supervisory officers participated in a group decision-making task. The results were immediately presented to them, and the participants regarded this as a valuable and 'eye-opening' experience. In the remainder of this chapter, I further explain the scientific and practical relevance of examining the research aims described above and provide an overview of the current dissertation.

To what extent are supervisory officers aware of and affected by biases?

A core principle of 'good supervision' is independence, which conveys the importance for supervisory bodies to act objectively in their decision-making (Aelen, 2014; Ottow, 2015b). For example, in their vision statement on supervision, the Dutch government urged supervisory bodies to 'perform [their] tasks objectively and professionally' (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2001, p. 5). However, according to *behavioural decision theory* (Slovic et al., 1977), human beings should not be seen exclusively as rational agents. Human beings are sometimes influenced by cognitive biases in decision-making, preventing them from correctly processing the available information and reaching the objectively best decision. Although most people acknowledge that biases exist, they often believe that others are more prone to biases than themselves. This tendency is also known as the 'bias blind spot' (Pronin et al., 2002), which indicates that people find it difficult to acknowledge and recognise their own biases and, therefore, need others to become more vigilant of biases in decision-making.

The question is whether well-trained and experienced professionals, such as supervisory officers, also show biases in decision-making. Previous research has shown that, in some professions, increased professional experience contributes to more accurate decision-making (Kahneman & Klein, 2009). In these professions, certain 'cues' are present as to when the same action can be taken in every situation, which is, for instance, often the case for the fire department and

intensive care. This suggests that, in decision-making, supervisory officers may to some extent rely on their prior experience when circumstances are highly similar—for instance, when performing routine inspections. However, for less routine tasks, such as the assessment of complex cases, this finding would imply that supervisory officers are more prone to bias (Schillemans & Giesen, 2020). This prior research indicates that it might be unrealistic to expect supervisory officers to reach decisions in a completely objective way, as even well-trained and experienced professionals may be susceptible to biases in decision-making.

In supervisory practice, most strategic decisions are made in groups because more perspectives are available to enrich the decision-making (Van Knippenberg & Schippers, 2007). Moreover, groups are considered more objective in their decision-making, as group members can compensate for each other's biases and, as a consequence, overcome individual-level bias. However, prior research has also shown that, at the group level, other types of biases may come to the fore, such as 'groupthink' (Baron, 2005; Sunstein & Hastie, 2015). *Groupthink theory* (Janis, 1982) describes the process in which a group's desire to reach consensus decreases their motivation to critically evaluate alternative actions. This can cause groups to choose the option that is preferred by the majority even when it is not the optimal one (Brodbeck et al., 2007). Thus, making decisions in groups might not be sufficient in itself to correct for potential biases in regulatory decision-making. This underlines the importance of identifying strategies that improve the quality of group decision-making.

What are effective strategies to improve regulatory decision-making?

Over the past decades, debiasing training and decision-making tools have become more widespread in practice to help decision-makers to become more vigilant of—and to correct for—biases in decision-making (Sibony, 2020). Accordingly, some organisations encourage their employees to use *decision-making tools* when reaching joint decisions. An example of a decision-making tool is the so-called devil's advocate procedure that aims to foster dissent in groups and improve decision quality. From a practical point of view, the increasing use of debiasing training and tools is understandable as their implementation could be seen as a 'quick fix' to create dissent and avoid groupthink. In the scientific literature to date, however, little is known about the effectiveness of such strategies, as most studies focus on identifying pitfalls in decision-making rather than finding solutions to overcome them (Lilienfeld et al., 2009). Nevertheless, some studies show that informing people about the risks of biases increases awareness and that providing

groups with particular decision-making tools fosters information sharing (for an overview of relevant studies, see Pronin, 2007; and Sohrab et al., 2015).

These prior findings suggest that providing professionals with training and practical tools may be an effective strategy to increase deliberation and reflection and thereby improve the quality of decision-making. However, supervisory officers should not only aim to reach decisions in a reflective manner but should also make sure to reach decisions in a timely way (Viñals et al., 2010). This poses a potential dilemma for supervisory officers: if they take too much time to examine and reflect on alternative strategies, they may forego the opportunity to take decisive action before social damage is done. Although this indicates that 'reflectiveness' might hinder 'decisiveness', it is still unclear whether these tendencies are indeed incompatible with each other or rather go hand in hand. Social psychological research suggests that reflective and decisive behaviours may go together at the group level where individuals can guard different aims (Rink & Ellemers, 2010). In the process of joint decision-making, some individuals might safeguard the free exchange of different views, while others might monitor that the group is progressing towards decision closure. Organisations would, therefore, probably do well to encourage both types of behaviours.

Prior research in social and organisational psychology has demonstrated that leadership and team climate strongly influence how team members behave and reach their decisions (Ellemers, 2012; Ellemers et al., 1999). *Team climate* is here defined as the set of norms, attitudes, and expectations that individuals perceive to operate in a team (Schneider, 1990). Prior research has shown that leadership and team climate more strongly influence behaviour than policies and procedures do (Kish-Gephart et al., 2010). Nevertheless, to improve decision-making, it seems that supervisory bodies tend to develop new policies and procedures as opposed to encouraging their leaders to create a supportive team climate. Prior research has shown that teams, in general, are most effective in reaching their goals when team members feel psychologically safe to speak up and feel responsible for the team outcomes (Edmondson, 2018). Moreover, previous research has emphasised the importance of leaders in supervisory practice who foster this type of climate (Stoker & Rink, 2015). When leaders explicitly invite team members to share their opinions, team members are more inclined to discuss alternative views and are more likely to support the final decision (Van den Bos & Spruijt, 2002). In turn, this may stimulate supervisory teams to make decisions in a reflective and decisive manner and reach informed and timely decisions.

The complementary role of external and internal supervision

This chapter opened by explaining the role that *external* supervisory bodies sometimes play in incidents and scandals; however, governments are increasingly paying attention to the role of *internal* supervisory bodies in such cases. Internal supervisory bodies refer to supervisory boards that monitor the managing board and financial affairs of a particular organisation. Therefore, after a scandal occurs, it is not surprising that these boards are among the first to be held accountable for organisational misconduct. For example, one of the primary duties of Wirecard's supervisory board was to examine and approve the company's financial statements. Nevertheless, they failed to uncover the financial fraud for years. It appears that Wirecard's supervisory board—just as BaFin (i.e., the supervisory authority)—was unable to detect the unlawful and unethical behaviour of the managing board, despite the information that was presented to them. Because of the extreme financial harm that this scandal had cost to individual investors, it is interesting to note that Wirecard's supervisory board, as well as BaFin's managing board, resigned from their positions. This demonstrates that, after a scandal occurs, both external and internal supervisory bodies can be blamed for flawed decision-making and can be held partly responsible.

Although the specific tasks and interests of external and internal supervisory bodies differ, to a large extent they guard similar aims, such as increasing compliance and good governance within organisations (WRR, 2015). Ideally, external and internal supervisory bodies fulfil a complementary role in society (Rink et al., 2021; Schakel & Stoopendaal, 2018). Whereas external supervisory bodies can implement guidelines and impose formal measures to steer the behaviour of supervised entities, internal supervisory bodies monitor and influence the managing board's behaviour on a more day-to-day basis (De Waal, 2020). Because of their complementary role, I consider the decision-making of both external and internal supervisors by collecting data among both types of supervisors. This raises an interesting question: *are external and internal supervisors influenced by similar processes when making decisions?* From a psychological perspective, it seems likely that both external and internal supervisors are susceptible to biases, simply because they are all 'just human' and, therefore, not fully rational when making decisions. Moreover, external and internal supervisors reach decisions in similar ways. For example, both make strategic decisions mostly in groups, often under a certain amount of time pressure. The practical implications of this dissertation would therefore be relevant to the decision-making of both external and internal supervisors.

To increase the readability of this dissertation, I generally use 'supervisory bodies' to refer to institutions or boards that perform supervisory activities, and 'supervisory officers' to refer to the individuals who work there. When I discuss studies that were performed among both types of supervisors, I specifically refer to 'external and internal supervisors'.

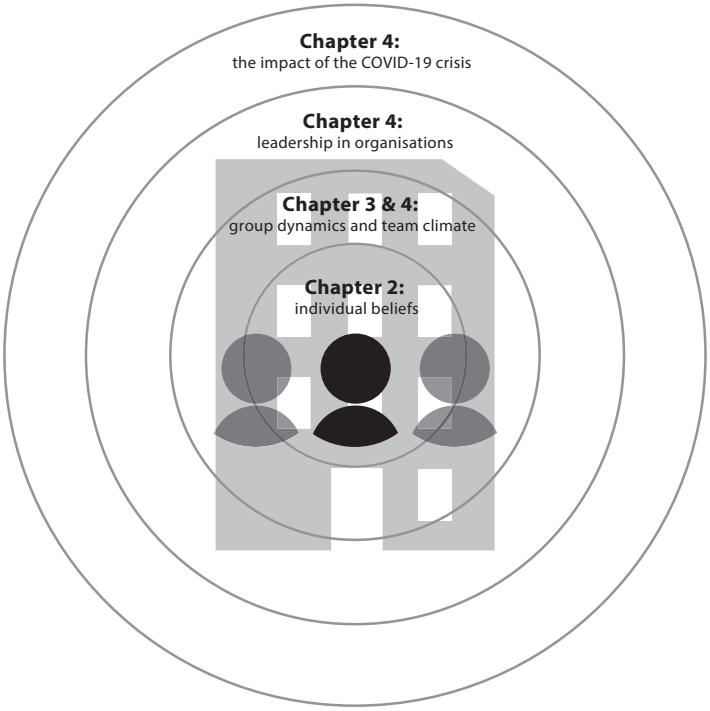
Overview of the current dissertation

The current dissertation consists of three empirical chapters and a general discussion that, together, provide more insight into the central research question: *to what extent are supervisory officers aware of and affected by biases in decision-making, and how can they improve their decision-making to reach informed and timely decisions?* As shown in Figure 2, each empirical chapter (Chapters 2–4) focuses on a different part of the 'system' that potentially influences the decision-making of supervisory officers. Chapter 2 explores the extent to which individuals believe they are objective and rational decision-makers and tests whether informing them about the risks of biases makes them more aware of their potential biases. Chapter 3 examines the extent to which *groups* are able to reach objective decisions or are biased in their decision-making, and tests whether the use of a popular tool (i.e., advocacy decision procedure or decisional balance sheet) improves decision quality. Chapter 4 investigates how empowering *leadership* behaviours and particular *team climate* characteristics are related to the joint decision-making of supervisory teams and, specifically, contribute to the reflectiveness and decisiveness of supervisory teams. The general discussion (Chapter 5) summarises the main findings of the empirical chapters and reflects on the scientific contributions and practical implications of this dissertation.

The research questions, methods, and samples of each empirical chapter are summarised in Table 1. In the first empirical chapter (Chapter 2), I explore the extent to which supervisory officers are aware of potential biases and whether they can become more vigilant (i.e., more concerned about biases in decision-making). Although supervisory officers are expected to reach decisions objectively, there is reason to assume that they show similar biases as students who are usually targeted in psychological research (Schillemans & Giesen, 2020). Nevertheless, supervisory officers might deny that they are susceptible to bias and exhibit a so-called bias blind spot (Pronin et al., 2002). Employing a questionnaire study (N = 201), I investigate the extent to which external and internal supervisors believe that they are less biased than others and how self-perceived objectivity and vigilance relate to this bias blind spot. By using a field experiment (N = 138), I examine whether informing supervisory officers about the risks of biases makes

them more vigilant as contrasted with providing a reassuring message (i.e., 'supervisory officers can rely on their experience') and a control condition (i.e., no instruction). This provides more insight into the question of how leaders and policymakers can best communicate their expectations to supervisory officers to make them more aware of their potential bias blind spot.

Figure 2. The empirical chapters examine various parts of the 'system' in which supervisory officers reach their decisions



In the second empirical chapter (Chapter 3), I examine the extent to which groups are affected by biases in decision-making and whether practical tools can support them to reach high-quality decisions. As more perspectives become available, groups are often expected to reach better decisions than individuals (Van Knippenberg & Schippers, 2007). In a group decision-making task, I test the extent to which groups of supervisory and managing board members ($N_{groups} = 47$) are able to reach the objectively best decision. According to the hidden-profile paradigm, information was asymmetrically distributed among group members, which should have been pooled to discover the objectively best solution. I also examine whether groups demonstrate *confirmation bias*, which here refers to the

group's tendency to hold on to their initial preference. Furthermore, as the use of decision-making tools is a widely used strategy to correct for biases, I investigate the effect of two different 'discussion procedures' (i.e., advocacy decision procedure and decisional balance sheet) on objective decision quality and subjective evaluations of the decision-making (i.e., confidence, satisfaction, and perceived reflection). Thus, in this hidden-profile experiment, I examine whether groups of supervisory and managing board members fall prone to confirmation bias and whether one of two popular decision-making tools helps them to reach better decisions.

In the final empirical chapter (Chapter 4), I investigate the extent to which supervisory teams make decisions in both a reflective and decisive manner and how team leaders can create the conditions that foster this. I also examine how the onset of the COVID-19 crisis impacted the reflectiveness and decisiveness of supervisory teams. Specifically, I test how particular empowering leadership behaviours and team climate characteristics relate to the joint decision-making of supervisory teams. By developing a new 10-item *Joint Decision-Making Questionnaire* and testing it among external and internal supervisors (N = 245), I examine how reflectiveness and decisiveness are interrelated: are these tendencies incompatible with each other or can they go together? Moreover, as leadership and team climate are important predictors of behaviour at work (Kish-Gephart et al., 2010), I examine how these aspects of the social context affect the reflectiveness and decisiveness of 44 supervisory teams. I investigate this at two specific points—just before and during the first peak of the COVID-19 crisis (i.e., natural experiment). This approach offers more insight into strategies that stimulate teams to make informed and timely decisions—also in challenging circumstances, such as working apart from one's co-workers during COVID-19.

In conclusion, this dissertation takes a novel social psychological approach to examine regulatory decision-making. This means that I examine the decision-making of supervisory officers at the individual and group-level. By conducting questionnaire studies and field experiments among diverse samples of supervisory officers, the next chapters provide more insight into the extent to which supervisory officers are aware of and affected by biases and how they can improve their decision-making. It should also be noted that the empirical chapters were written as separate articles and can be read independently from each other. As my personal mission is to further narrow the research-to-practice gap, I hope this dissertation inspires supervisory officers to take a closer look at how they reach their decisions and to take the next steps in improving their

decision-making. As a result, supervisory bodies may become more effective in making informed and timely decisions to prevent harm to society.

Table 1. Overview of the empirical chapters

Chapter	Research Questions	Methods	Samples
2) 'Everyone is biased but me': The persistent bias blind spot of supervisory officers	To what extent do supervisory officers show a bias blind spot? Does warning against bias decrease the bias blind spot?	Questionnaire study Field experiment	Sample 1: 122 external supervisors + 79 internal supervisors from various supervisory bodies Sample 2: 138 employees from a supervisory authority
3) Quality of group decisions made by board members: A hidden-profile experiment	To what extent do supervisory and managing board members fall prone to group confirmation bias? Do discussion procedures increase objective decision quality?	Field experiment (using the hidden-profile paradigm)	A sample of 105 supervisory board members + 36 managing board members from various organisations (in groups of three; $N_{groups} = 47$)
4) Reflective and decisive supervision: The role of participative leadership and team climate in joint decision-making	Are 'reflectiveness' and 'decisiveness' incompatible with each other or can they go together? To what extent can leaders empower supervisory teams to act reflectively and decisively?	Two questionnaire studies Natural experiment (testing the impact of the COVID-19 crisis)	Sample 1: 87 external supervisors + 158 internal supervisors from various supervisory bodies Sample 2: 271 ($N_{teams} = 44$; Time 1) + 215 employees ($N_{teams} = 42$; Time 2) from a supervisory authority


2

Chapter 2

‘Everyone is biased but me’: The persistent bias blind spot of supervisory officers

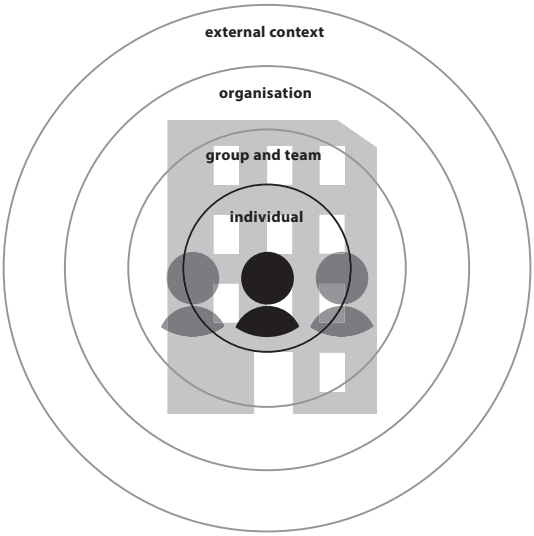
Based on: Coffeng, T., Van Steenbergen, E. F., De Vries, F., & Ellemers, N. ‘Denkfouten, die heb ik niet’: Aandacht voor de blinde vlek van toezichthouders. *Tijdschrift voor Toezicht, 2021*(4), 161-174. https://doi.org/10.5553/TvT/187987052021012004002

Author contributions: Coffeng designed the studies (including the development of the different instruction texts), collected the data during or prior to the conferences and lectures that are reported in this chapter, conducted the data analysis, and authored the manuscript. Van Steenbergen aided in designing the studies, interpreting the data, and reviewing and revising the manuscript. De Vries commented on several drafts of the manuscript. Ellemers provided input on the design of the studies and edited various versions of the manuscript. Coffeng, Van Steenbergen, and Ellemers presented the data during the conferences and lectures that are reported in this chapter. Throughout this chapter, ‘we’ refers to the collective authorship of the article.

Abstract

Most people believe that others are more prone to biases than themselves. The current research examines the extent to which supervisory officers show this so-called *bias blind spot*. Moreover, this research investigates whether warning supervisory officers against bias reduces this potential tendency to underestimate their susceptibility to bias. A questionnaire study (Study 1, N_{total} = 201) showed that both external and internal supervisors demonstrated a bias blind spot. This study further revealed that self-perceived objectivity (i.e., the extent to which individuals consider themselves to be objective) was associated with a larger bias blind spot. Furthermore, vigilance (i.e., the extent to which supervisory officers are concerned about bias) was associated with a smaller bias blind spot. A field experiment (Study 2, N = 138) revealed that providing two types of *warning instructions* that informed supervisory officers about the risks of biases did not influence the bias blind spot, self-perceived objectivity, or vigilance. A *reassuring instruction* (i.e., 'supervisory officers can rely on their experience') even reduced vigilance. This kind of message should, therefore, be avoided in communication targeted at supervisory officers. A broader implication is that supervisory officers would do well to question each other's assumptions in order to become more vigilant and thereby reduce their potential bias blind spot and its consequences for decision-making.

Keywords: bias blind spot, decision-making, self-perceived objectivity, vigilance



Introduction

Websites of supervisory bodies (e.g., market authorities, inspectorates) often mention core values such as 'independence' that should guide the behaviour of employees. According to the Dutch Authority for Consumers and Markets (ACM), independence means that 'you always reach your own judgements objectively'. The Dutch Inspectorate of Justice and Security (IJ&V) states that inspectors must be able to 'perform analyses and reach judgements objectively'. It can be questioned, however, as to how realistic such expectations are. Numerous studies show that all human beings fall prone to cognitive biases and are able to act rationally and objectively only to a limited extent (Simon, 1955). *Cognitive biases* occur when individuals draw the wrong conclusion based on their personal values and beliefs (Tversky & Kahneman, 1974). However, prior research has shown that people tend to believe that others are more prone to biases than themselves (Pronin et al., 2002). This so-called *bias blind spot* can negatively influence decision-making quality when, as a result, the perspectives of others are taken less seriously (Scopelliti et al., 2015).

The current research aims to examine the extent to which supervisory officers show a bias blind spot and whether informing them about the risks of biases makes them more vigilant. As supervisory officers are expected to reach their decisions in an objective manner, it is important to investigate psychological processes that may negatively influence their decision-making (Ottow, 2015a). However, still little psychological research has been conducted in supervisory practice, even though psychological theories and methods could provide more insight into such processes (Van Steenbergen, 2021). In the current research, we use psychological questionnaires to measure the potential bias blind spot of supervisory officers. Moreover, we conduct a field experiment to test how various instruction texts—those that inform supervisory officers about biases—influence the bias blind spot. This research may lead to more insight into the question of how supervisory bodies can best communicate their core values and what they expect from their employees regarding decision-making.

In the section below, we discuss insights from prior research on the bias blind spot and explain why these are relevant for supervisory practice. Next, we describe results from two studies conducted among supervisory officers and their implications for supervisory practice.

Biases in supervision

To prevent social harm, it is essential that supervisory bodies carefully consider potential risks and set the right priorities for deploying their scarce resources—that is, 'pick important problems and fix them' (Sparrow, 2000). Supervisory bodies should determine the most important risks and decide which interventions are most effective to address them. To do this, supervisory bodies must weigh differing interests and perspectives independently and objectively, even when they do not have all available information and some of the risks are uncertain (WRR, 2013). Supervisory bodies often depend on supervised entities to gain access to the information they need (i.e., information asymmetry); this can make it even more difficult to obtain correct and complete information (Jansen & Aelen, 2015). Moreover, as supervisory bodies also have to intervene in a timely way (Coffeng et al., 2021c), they sometimes make decisions under the pressure of time. These circumstances may increase the risk of bias, which implies that supervisory officers should be vigilant for bias when making decisions.

In Jansen and Aelen (2015), nine types of cognitive biases were presented that are relevant to the decision-making of supervisory officers. One well-known example is *confirmation bias*. This bias implies that supervisory officers primarily search for information that confirms their pre-existing ideas, causing them to listen selectively and weigh supportive information disproportionately. For example, in the past, supervisory bodies have lost court cases because they solely considered evidence that confirmed their assumptions (Ottow, 2015a). Another example is *impact bias*, which refers to the tendency of supervisory officers to overestimate the consequences of their decisions on particular cases (Jansen & Aelen, 2015). In the past, this has caused supervisory bodies to postpone formal intervention, which would have been appropriate in hindsight (Ottow, 2015a). Thus, biases in decision-making can cause supervisory bodies to act ineffectively.

The question is whether supervisory officers indeed show biases in their decision-making. Although most studies on decision-making have been conducted among student samples (for an overview, see Pronin, 2007), some evidence suggests that even supervisory officers are affected by bias. For example, an experimental study showed that supervisory officers fell prone to the recency effect to a similar extent as undergraduate students (Schillemans & Giesen, 2020). Supervisory officers were stricter in their judgement when incriminating information was presented last as compared to when exculpatory information was presented last. Another experimental study has shown that internal supervisors (i.e., supervisory board members) were prone to *confirmation bias* (Coffeng et al., 2021b). In this study, most

participants maintained their initial preference even though this preference was not necessarily the best option. These prior findings suggest that even well-trained and experienced supervisory officers might be susceptible to biases in decision-making.

Bias blind spot

The scientific literature on decision-making to date has shown that people tend to underestimate the impact of biases on their own decision-making but do believe that others are susceptible to bias. This tendency is known as the 'bias blind spot' (Pronin et al., 2002). When people are asked to rate the extent to which specific biases (e.g., confirmation bias, impact bias) occur in the decision-making of themselves and others, most people estimate that they are less prone to biases than others (Pronin, 2007). Although one's bias blind spot is not necessarily indicative of the extent to which someone actually demonstrates biases (West et al., 2012), having a bias blind spot can negatively influence the quality of decision-making. Prior research among workers has shown that people who believe that others are more prone to biases than themselves are more likely to ignore the advice of others and to overestimate their own capabilities (Scopelliti et al., 2015). This can, in turn, hinder information sharing, which usually does not benefit decision-making.

The bias blind spot is a specific manifestation of the well-known *better-than-average effect* (Scopelliti et al., 2015). The better-than-average effect refers to the human tendency to estimate oneself better than average on easy tasks such as driving (Svenson, 1981). As it is not possible for everyone to be better than average, it appears that most people overestimate their own capabilities. An important explanation for this tendency is that people prefer to see themselves in a positive light (i.e., self-enhancement bias) and strongly rely on their personal beliefs as indicators of the truth (i.e., introspection illusion; Ehrlinger et al., 2005; McPherson Frantz, 2006; Pronin et al., 2004). Moreover, people tend to believe that their thoughts are unbiased reflections of reality, causing them to perceive themselves as 'objective' and to reflect less on their assumptions (Ross & Ward, 1996). This *self-perceived objectivity* actually increases the risk of bias. For example, an experimental study on gender bias in job interviews showed that priming people with their own objectivity increased the likelihood to prefer the male candidate over the female candidate (Uhlmann & Cohen, 2007). Thus, when participants were made aware of their own objectivity, they relied more on the gender stereotype that men are more competent than women, leading to biased decisions.

A small number of experimental studies among students and workers have investigated whether it is possible to correct for the bias blind spot. These studies showed that informing people about the risks of biases can decrease the bias blind spot (Pronin, 2007). For example, an experimental study showed that students who had just read a scientific article about 'the effects of unconscious processes' did not show a bias blind spot, whereas students who had read an article on an unrelated topic did show a bias blind spot (Pronin & Kugler, 2007). A similar study showed that workers who were presented with a short text about a particular bias showed this bias to a lesser extent on a specific task than workers who were presented with a text about an unrelated topic (Scopelliti et al., 2015). This positive effect was, however, only found among workers who already demonstrated a relatively small bias blind spot. Another experiment revealed that playing a video game—one in which students were informed about the risks of specific biases—reduced the bias blind spot directly after playing the game, but also eight weeks later (Bessarabova et al., 2016). Specifically, the goal in this video game was to prevent a terrorist attack by making unbiased decisions; students were automatically notified when they demonstrated bias. Based on these studies, it seems promising to inform supervisory officers about biases to reduce their potential bias blind spot.

The current research

Using a questionnaire study (Study 1, $N_{total} = 201$) and a field experiment (Study 2; $N = 138$), we examined the extent to which supervisory officers show a potential bias blind spot. We also examined the extent to which *self-perceived objectivity* (i.e., the extent to which people consider themselves to be objective) is related to a larger bias blind spot. Additionally, we tested the effects of two 'warning instructions' and one 'reassuring instruction' on the bias blind spot. Each of these instructions informs supervisory officers about the risks of biases but sends a different message on how one should deal with biases when making decisions. For example, one of the two warning instructions emphasised that supervisory officers should guard themselves against biases, while the reassuring instruction conveyed that supervisory officers could rely on their experience. We examined which message made supervisory officers more or less vigilant of biases in decision-making. Furthermore, we investigated how certain individual characteristics, such as age and managerial position, are related to the bias blind spot. As the studies were conducted among both external and internal supervisors, we also examined the extent to which both types of supervisors show a potential bias blind spot.

Study 1: Measuring the bias blind spot

In Study 1, we examined the extent to which external and internal supervisors demonstrate a potential bias blind spot and whether this is increased by self-perceived objectivity.

Method

Participants and procedure

Participants of two conferences, organised by their professional association, received a questionnaire. This resulted in a diverse sample of external supervisors (e.g., inspectors; N = 122) and internal supervisors (i.e., supervisory board members; N = 79) from various organisations in the Netherlands. It was emphasised that participation was voluntary and anonymous and that data would be handled confidentially. Because it was unknown how many external and internal supervisors actually participated in both conferences, we cannot calculate the exact response rates. Based on our observations during the conferences, we have estimated that almost all conference participants (approximately 90%) completed the questionnaire. The questions asked were part of a larger survey on decision-making, the input of which was used for a presentation by the researchers during the two conferences.

In both samples, participants were asked whether they were employed as an external or internal supervisor so that we could filter out conference participants with other formal positions (e.g., consultants). As a result, we removed 14 participants from the sample of external supervisors and one participant from the sample of internal supervisors. Furthermore, the external supervisors were asked whether they fulfilled a managerial position. This was the case for 26 participants (21%). We did not ask for other background information so as to lower the threshold for participating in this study in a conference setting.

Measures

In both samples, all scales were reliable with a Cronbach's alpha higher than .70. Based on the four-item questionnaire developed by Uhlmann and Cohen (2007), *self-perceived objectivity* was measured on a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. The four items were as follows: 'In most situations, I act rationally and logically'; When forming an opinion, I objectively consider all the facts I have access to'; 'My judgements are based on a logical analysis of the facts'; 'My decision-making is rational and objective'.

Based on the questionnaire developed by Scopelliti et al. (2015) and the nine relevant biases identified by Jansen and Aelen (2015), the *bias blind spot* was measured as follows: 'Psychological research has shown that some people demonstrate particular tendencies. Assess to what extent you think that you show the following tendencies in your work yourself and to what extent the average Dutchman shows these tendencies. The examples are provided purely for illustrative purposes'. Next, nine biases were described (see Table A1). For example, the *halo-effect* was described as follows: 'The tendency to attribute positive characteristics to a person or situation based on one experience or impression. For example, some people judge the skills of a sympathetic board member more positively than is correct. To what extent do you show this tendency? (on a scale from 1 = not at all to 7 = very much). To what extent does the average Dutchman show this tendency? (on a scale from 1 = not at all to 7 = very much)'. The extent to which participants show a bias blind spot is demonstrated by the difference score (i.e., the score assigned to the average Dutchman minus the score assigned to participants themselves).

Importantly, in Study 2, we examined the bias blind spot by making a comparison with the 'average supervisory officer in the Netherlands'. It might be logical that supervisory officers who are professional decision-makers estimate that they are less prone to bias than the average Dutchman. However, this may be less so when comparing themselves with the average supervisory officer, which then provides more support for the bias blind spot.

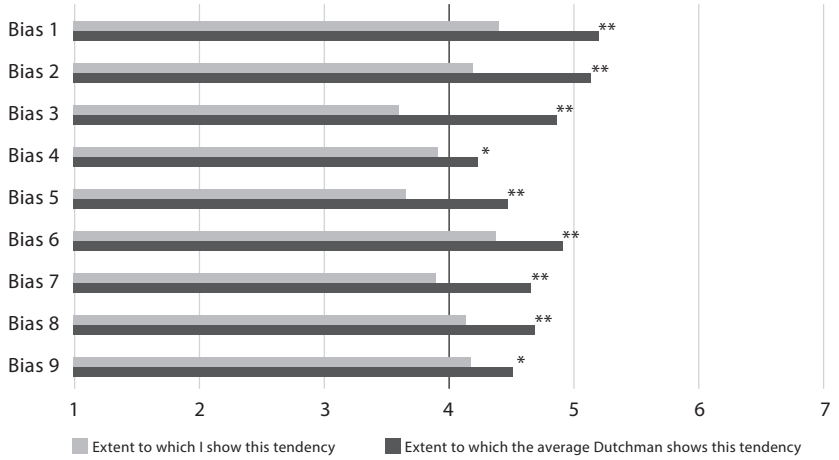
Results

Do external and internal supervisors show a bias blind spot?

On a 7-point Likert scale, external supervisors scored on average 4.81 (SD = .95) on self-perceived objectivity, and internal supervisors scored on average 5.45 (SD = .93). Thus, both external and internal supervisors rated themselves as fairly objective, as they scored higher than the neutral midpoint of the scale (i.e., higher than 4).

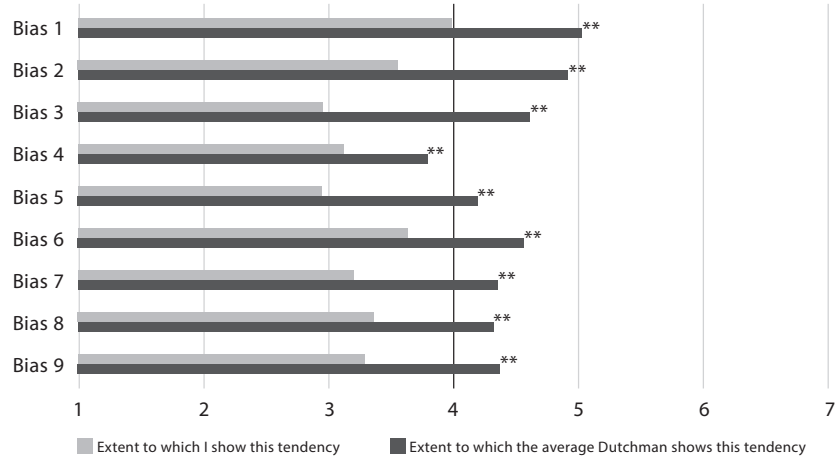
Figure 3 shows the bias blind spot of external supervisors and Figure 4 shows the bias blind spot of internal supervisors. As shown in these figures, both external and internal supervisors estimated that they are less biased than others. The bias blind spot (i.e., difference score) of external supervisors was on average .70 (SD = .60), $t(121) = 13.06$, $p < .001$. The bias blind spot (i.e., difference score) of internal supervisors was on average 1.10 (SD = .67), $t(78) = 14.55$, $p < .001$.

Figure 3. Bias blind spot of external supervisors (*N* = 122)



Note. Bias 1 = Halo-effect; Bias 2 = Confirmation bias; Bias 3 = Availability bias; Bias 4 = Information bias; Bias 5 = Single outcome calculation; Bias 6 = Ambiguity aversion; Bias 7 = Illusion of control; Bias 8 = Anchoring effect; Bias 9 = Impact bias.
* $p < .05$, ** $p < .01$.

Figure 4. Bias blind spot of internal supervisors (*N* = 79)



Note. Bias 1 = Halo-effect; Bias 2 = Confirmation bias; Bias 3 = Availability bias; Bias 4 = Information bias; Bias 5 = Single outcome calculation; Bias 6 = Ambiguity aversion; Bias 7 = Illusion of control; Bias 8 = Anchoring effect; Bias 9 = Impact bias.
* $p < .05$, ** $p < .01$.

Thus, both external and internal supervisors demonstrated a so-called bias blind spot. An independent samples *t*-test further showed that internal supervisors scored significantly higher on self-perceived objectivity ($t(199) = 4.71$, $p < .001$) and demonstrated a larger bias blind spot ($t(199) = 4.36$, $p < .001$) than external supervisors. We reflect on this latter finding in the discussion below.

Is self-perceived objectivity related to a larger bias blind spot?

To examine whether self-perceived objectivity is related to a larger bias blind spot, we investigated correlations between study variables. As shown in Table 2 and Table 3, self-perceived objectivity was positively correlated with bias blind spot among external supervisors but not among internal supervisors. A statistical explanation for this is that self-perceived objectivity among external supervisors was only significantly correlated with the first aspect of the bias blind spot (i.e., the estimation that bias impacts one's own decision-making; see Table 2). Among internal supervisors, however, self-perceived objectivity was significantly correlated with both aspects of the bias blind spot (i.e., the estimation that bias impacts one's own decision-making and the decision-making of others; see Table 3). Although we did not find a correlation between self-perceived objectivity and bias blind spot among internal supervisors, we still found that internal supervisors who consider themselves to be more objective are less inclined to believe that biases impact their own and others' decision-making. Furthermore, within the sample of external supervisors, having a managerial position was correlated with bias blind spot but not with self-perceived objectivity (see Table 2).

Table 2. Descriptive statistics and correlations for external supervisors

Variable	*M*	*SD*	1	2	2a	2b	3
1. Self-perceived objectivity	4.81	.95	-				
2. Bias blind spot (difference score)	.70	.60	.35**	-			
2a. Estimation self	4.04	.82	-.37**	-.69**	-		
2b. Estimation other	4.74	.60	-.15	.06	.69**	-	
3. Managerial position (0 = no, 1 = yes)			.07	.20*	-.14	.02	-

Note. * $p < .05$, ** $p < .01$.

Table 3. Descriptive statistics and correlations for internal supervisors

Variable	*M*	*SD*	1	2	2a	2b
1. Self-perceived objectivity	5.45	.93	-			
2. Bias blind spot (difference score)	1.10	.67	.07	-		
2a. Estimation self	3.28	.89	-.27*	-.57**	-	
2b. Estimation other	4.37	.75	-.26*	.22	.68**	-

Note. * $p < .05$, ** $p < .01$.

When we corrected for managerial position in an analysis of covariance (ANCOVA) among the sample of external supervisors, we again found that self-perceived objectivity was positively related to bias blind spot ($F(1,119) = 16.11$, $p < .001$). Thus, the more that external supervisors considered themselves to be objective, the larger their bias blind spot was. Managerial position was positively related to bias blind spot ($F(1,119) = 4.50$, $p = .036$). This shows that managers had a larger bias blind spot ($M = .91$, $SD = .11$) than non-managers ($M = .65$, $SD = .06$). In summary, external and internal supervisors showed a so-called bias blind spot; they believed that they were less biased than the average Dutchman. They also considered themselves to be fairly objective in their decision-making. Among the sample of external supervisors, self-perceived objectivity was related to a larger bias blind spot. Furthermore, having a managerial position was related to a greater bias blind spot.

Study 2: Testing the effects of informative texts

In Study 2, we investigated how providing external supervisors with a warning or reassuring instruction influences self-perceived objectivity and the potential bias blind spot.

Method

Participants and procedure

A field experiment was conducted among employees of a supervisory authority ($N = 138$) in the Netherlands. By using an experiment, we were able to test the effects of different instruction texts, compared to a control condition (i.e., no text), and to investigate how each text influences self-perceived objectivity and the potential bias blind spot. We also tested how each text influences 'vigilance', which we operationalised as the extent to which supervisory officers become concerned after reading a text about the risks of biases. All employees received a link to the online experiment via email. This email indicated that the participation was completely voluntary and anonymous and that participants could send an email to the organising committee for a chance to win a popular gift card worth 25 euros. In total, 29% of the employees participated in the survey. The results of the experiment were used for a lecture by the researchers at this organisation. Debriefing took place during the presentation.

The sample consisted of 70 men (51%) and 68 women with a mean age of 40 years ($SD = 9.41$). Almost all participants (91%) went to university. Most participants

(77%) had a full-time appointment, and 10% held a managerial position. On average, participants were employed by the supervisory authority for seven years (*SD* = 4.78), and 28% had worked in one of the sectors that this organisation supervises. Although these sample characteristics were representative for the particular organisation, we cannot draw firm conclusions about the generalisability of this study's findings to other types of organisations.

Conditions

To test the effects of various instructions on the potential bias blind spot, participants were randomly assigned to one of three experimental conditions or the control condition. In the control condition (*n* = 32), participants immediately completed a questionnaire. In the experimental conditions, participants were first presented with an 'instruction' on how to deal with biases. The instructions had the following titles: 'Supervisory officers should guard themselves against bias' ('guard'-instruction, *n* = 37); 'How supervisory officers can be as objective as possible' ('strive'-instruction, *n* = 33); 'Supervisory officers can rely on their experience' ('trust'-instruction, *n* = 36). See Table B1 for the complete instruction texts.

The first instruction was characterised by its stern tone to make supervisory officers more aware of the risk of biases in decision-making. The second instruction provided supervisory officers more guidance on how to strive for objectivity as much as possible. In practice, both messages are probably used to warn supervisory officers against biases in decision-making. Because the tone of these instructions is different (i.e., directive vs guiding), the two instructions might affect the outcome variables in different ways, which is explored in the current research. In contrast, supervisory officers were told in the third instruction that they could rely on their experience when forming a judgement and that they did not have to worry about biases in decision-making. This message is in line with the popular notion that more experienced professionals are less susceptible to bias, which is why we explore the effect of this message as well. Thus, we distinguish between two types of 'warning instructions' and one 'reassuring instruction'. Participants were asked to read the instruction carefully and take some time to consider it before completing the questionnaire.

Measures

All scales were reliable with a Cronbach's alpha higher than .70. Based on the work of Lazarus and Folkman (1984) that shows that experiencing negative emotions makes people more vigilant or alert on negative outcomes, *vigilance*

was measured with two emotions on a scale from 1 = not at all to 7 = very much: 'After reading this text, I feel ... uncertain; ... concerned' (in the control condition: 'Right now, I feel ...'). *Self-perceived objectivity* was measured in the same way as in Study 1. In the experimental conditions, these questions were introduced as follows: 'After reading the text, how do you feel about your professional decision-making?' (In the control condition: 'How do you feel about your professional decision-making?'). *Bias blind spot* was measured in the same way as in Study 1, with one important difference: participants were asked to rate themselves and the 'average supervisory officer in the Netherlands'. We did this to examine whether supervisory officers also show a bias blind spot when they compare themselves with their peers rather than the average Dutchman.

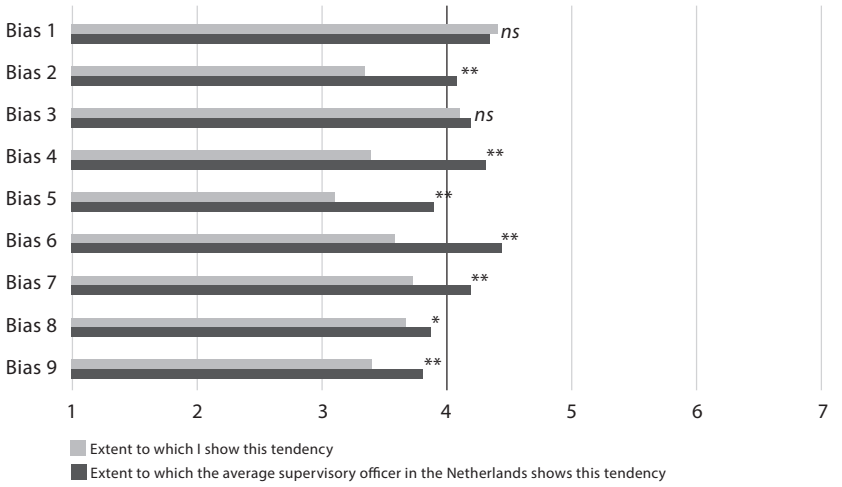
At the end of the questionnaire, participants in the experimental conditions were asked to assess the following three questions (i.e., manipulation check) on a scale from 1 = not at all to 7 = very much: 'At the beginning of this questionnaire, you have read a text. To what extent did this text state that supervisory officers … should guard themselves against biases?; … should strive for a decision-making process that is as objective as possible?; … can rely on their experience?'. A multivariate analysis of variance (MANOVA) showed that the three instructions were considered significantly different from each other ($F(6,202) = 27.61$, $p < .001$). As intended, in comparison with the other conditions, participants in the 'guard'-condition scored higher on the first question, the 'strive'-condition scored higher on the second, and the 'trust'-condition scored higher on the third (for statistical details, see Table C1). Thus, the three instructions were perceived as intended.

Results

To what extent are supervisory officers concerned about bias?

On a 7-point Likert scale, participants scored on average 2.69 (SD = 1.24) on vigilance. In other words, supervisory officers scored relatively low on feelings of uncertainty and concern after reading a text about the risks of biases (i.e., lower than neutral). Participants scored on average 5.07 (SD = .95) on self-perceived objectivity. Thus, similar to participants in Study 1, these supervisory officers considered themselves to be quite objective. As shown in Figure 5, we again found a bias blind spot (i.e., difference score) of .51 (SD = .64), $t(137) = 9.27$, $p < .001$. In other words, supervisory officers showed a bias blind spot: they estimated that other supervisory officers are more prone to bias than themselves.

Figure 5. Bias blind spot of employees of a supervisory authority (*N* = 138)

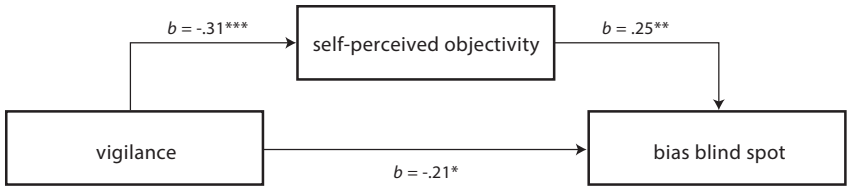


Note. Bias 1 = Halo-effect; Bias 2 = Confirmation bias; Bias 3 = Availability bias; Bias 4 = Information bias; Bias 5 = Single outcome calculation; Bias 6 = Ambiguity aversion; Bias 7 = Illusion of control; Bias 8 = Anchoring effect; Bias 9 = Impact bias.
* $p < .05$, ** $p < .01$.

Is vigilance related to a smaller bias blind spot?

As shown in Table 4, vigilance was negatively correlated with self-perceived objectivity and bias blind spot. Similar to the external supervisors in Study 1, self-perceived objectivity was positively correlated with bias blind spot. Of the background variables, *age* and *years of employment* were correlated with bias blind spot. These correlations raise the question of whether increasing vigilance can cause supervisory officers to consider themselves to be less objective and, subsequently, show a smaller bias bind spot. Therefore, we also performed a mediation analysis. When we corrected for age and years of employment, vigilance was related to less self-perceived objectivity and, in turn, to a smaller blind spot (see Figure 6). As vigilance was also directly related to bias blind spot, this concerns a partial mediation ($b_{indirect}$ = -.08, p = .019). Thus, the more vigilant that supervisory officers were, the less objective they considered themselves to be and the smaller their bias blind spot was.

Figure 6. Vigilance is related to a smaller bias blind spot



Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

How does warning against bias influence the bias blind spot?

To test the effects of the different instructions on vigilance, self-perceived objectivity, and bias blind spot, analyses of covariance (ANCOVA) were performed, in which we controlled for age and years of employment. There were no significant effects of condition on self-perceived objectivity and bias blind spot (for statistical details, see Table D1). Thus, supervisory officers perceived themselves as quite objective and showed a bias blind spot, regardless of the condition they were in and which instruction they had read. However, there was a marginally significant effect of condition on vigilance ($F(3,132) = 2.48$, $p = .064$). This result indicates that one of the conditions was significantly different from another but does not yet indicate which one. Pairwise comparisons showed a significant effect of the 'trust'-instruction. The 'trust'-instruction resulted in lower vigilance compared to the 'guard'-instruction ($p = .036$) and the control condition ($p = .014$), as shown in Figure 7. Thus, the reassuring instruction that stated that 'supervisory officers can rely on their experience' caused supervisory officers to become less vigilant (i.e., less concerned about bias).

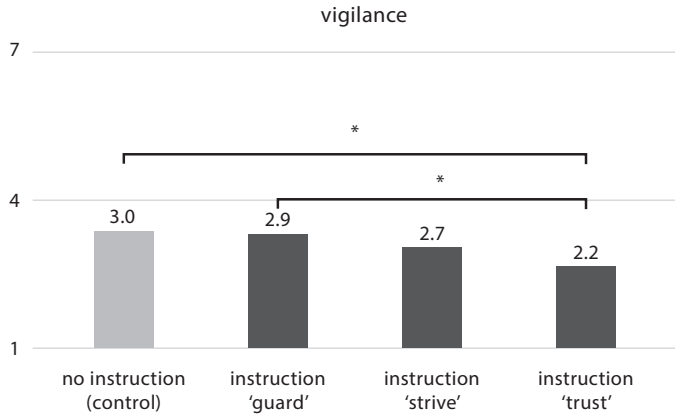
There was also a significant effect of age on the bias blind spot ($F(1,132) = 4.52$, $p = .035$) but not of years of employment (for statistical details, see Table D1). Thus, the older supervisory officers were, the larger their bias blind spot was. In summary, these results showed that vigilance was related to a smaller bias blind spot and that a reassuring instruction (i.e., 'supervisory officers can rely on their experience') reduced vigilance among supervisory officers.

Table 4. Descriptive statistics and correlations for background and study variables

Variable	*M*	*SD*	1	2	3	3a	3b	4	5	6	7	8	9	10
1. Vigilance	2.69	1.24	-											
2. Self-perceived objectivity	5.07	.95	-.31**	-										
3. Bias blind spot (difference score)	.51	.64	-.30**	.33**	-									
3a. Estimation self	3.71	.85	.40**	-.33**	-.56**	-								
3b. Estimation other	4.22	.73	.20*	-.10	.23**	.68**	-							
4. Gender (0 = male, 1 = female)			.08	-.01	-.06	.10	.07	-						
5. Age (in years)	39.67	9.41	-.05	.02	.23**	-.18*	-.01	-.29**	-					
6. Education (0 = professional, 1 = university)			.07	.05	-.04	.12	.11	.10	-.10	-				
7. Employment (0 = part-time, 1 = full-time)			-.10	.04	.04	-.16	-.15	-.25**	-.15	.08	-			
8. Years of employment	6.60	4.78	-.02	.07	.18*	-.10	.04	-.21*	.61**	-.11	-.11	-		
9. Managerial position (0 = no, 1 = yes)			.12	-.15	-.10	.11	.04	-.07	.24**	.11	-.03	.06	-	
10. Previously employed in sector (0 = no, 1 = yes)			.02	-.02	-.04	.01	-.02	-.15	.23**	-.10	-.05	.17*	.05	-

Note. $^{*}p < .05$, $^{**}p < .01$.

Figure 7. The 'trust'-instruction reduces vigilance



Note. * $p < .05$.

Discussion

The current research examined the extent to which supervisory officers show a bias blind spot: do they believe that others are more prone to bias than themselves? Moreover, we tested the effects of various instruction texts on the potential bias blind spot of supervisory officers to investigate which message makes supervisory officers more vigilant.

A consistent finding across the two studies is that external and internal supervisors showed a bias blind spot. In Study 1, we found that external and internal supervisors believed that they were less biased than the average Dutchman. In Study 2, we found that supervisory officers also demonstrated a bias blind spot when they compared themselves with the average supervisory officer in the Netherlands. This suggests that supervisory officers demonstrate a so-called bias blind spot. This bias blind spot was on average smaller (i.e., between .50 and 1.10) than the bias blind spot found in American studies among students (e.g., difference score of 1.78; Pronin & Kugler, 2007) and workers (e.g., difference score of 1.48; Scopelliti et al., 2015). Even though supervisory officers were slightly more aware of the risk of biases in decision-making, as one would expect from them, they nevertheless showed a bias blind spot.

Interestingly, internal supervisors considered themselves to be more objective and showed a greater bias blind spot than external supervisors. This suggests that internal supervisors in particular find it difficult to recognise or acknowledge the impact of potential biases on their own decision-making. Because internal supervisors (i.e., supervisory board members) are in general highly experienced decision-makers, it could be that they are less frequently challenged on their decision-making. This might cause them to overestimate their capabilities even more (Uhlmann & Cohen, 2007). Thus, these findings indicate that it might be especially challenging for internal supervisors to correct for biases in decision-making.

Furthermore, from all individual characteristics (i.e., gender, age, education, type of employment, employment years, managerial position, industry experience), we found that age was related to a larger bias blind spot (see Study 2). In other words, the older supervisory officers were, the larger their bias blind spot was. A possible explanation is that supervisory officers who are older often have more professional experience and may, therefore, believe they are less prone to bias than their younger or less-experienced colleagues. In the current research, age and employment years were strongly correlated with each other, but age was more strongly related to the bias blind spot than employment years. If employment years would have been measured as the total number of years that someone has been employed rather than the employment years at the current organisation, then its effect on the bias blind spot might have been stronger.

The current research further suggests that managers show a greater bias blind spot than non-managers. In Study 1, in which 21% of participants held a managerial position, managers demonstrated a larger bias blind spot than non-managers. However, this was not the case in Study 2, in which only 10% of the participants held a managerial position. To confirm the finding that managers have a greater bias blind spot, future research is needed in which a balanced comparison is made between supervisory officers with and without a managerial position. If this future research were to show that managers demonstrate a greater bias blind spot, this could be due to their hierarchical position that causes people in general to overestimate their own capabilities even more (Uhlmann & Cohen, 2007).

Finally, this research showed that none of the instructions made supervisory officers more vigilant of biases in decision-making. Supervisory officers, however, became *less* vigilant after reading a reassuring instruction, which stated that 'supervisory officers can rely on their experience'. Thus, participants who had read that they could rely on their experience were less concerned about biases

than participants who had read that they should guard themselves against bias and participants who had not read any text (i.e., control condition). This effect was independent of participants' age and employment years and, therefore, was evident among both less and more experienced supervisory officers. The reassuring instruction had an undesirable effect as supervisory officers became less vigilant, while vigilance was associated with lower self-perceived objectivity and a smaller bias blind spot.

Moreover, the two warning instructions did not increase vigilance. Supervisory officers who received a warning instruction were just as vigilant as supervisory officers who did not read any instruction (i.e., control condition). The warning instructions, thus, merely supported supervisory officers in remaining vigilant at the same level. A possible explanation is that the warning instructions were already the norm within the organisation that we examined and, therefore, did not deviate significantly from the control condition. It could also be that the instructions were too weak to reduce the bias blind spot. In the latter case, it would be interesting for future research to test instructions that warn against bias more strongly. For example, future research could emphasise that supervisory officers will be held accountable for their decisions, as this is related to more careful decision-making (Aleksovska et al., 2019). Even though the instructions already issued a clear warning against biases in decision-making, their effects might be stronger when also calling for accountability.

Limitations and future research

The current research has several limitations. First, as we wanted to gain insight into the self-perceptions of supervisory officers, this research relied on questionnaire studies, which possibly resulted in selection bias. As data collection took place during or prior to conferences, it could be that primarily supervisory officers were reached that were intrinsically motivated to learn about bias in decision-making. We cannot exclude the possibility that this sample of supervisory officers was indeed less biased than average. Nevertheless, we remain confident in the results as these are in line with conclusions from prior studies that were conducted in different organisational and national contexts (for an overview of studies that consistently show a bias blind spot among highly diverse samples, see Pronin, 2007). Moreover, as this research relied on self-reported outcomes, it might be interesting for future research to relate the bias blind spot to objective indicators of decision quality. For this aim, a realistic case from supervisory practice could be used that demonstrates the presence of particular biases (e.g., Schillemans & Giesen, 2020).

Second, we performed a field experiment to test the effects of various instructions on the potential bias blind spot of supervisory officers, which showed that a reassuring message can decrease vigilance. However, relationships between study variables were investigated by testing correlations. Correlations indicate which variables are related to each other but do not provide a definitive answer about causality. We cannot establish causally whether more vigilance leads to less self-perceived objectivity and a smaller bias blind spot. It could also be the case that people who increasingly consider themselves to be objective become, in turn, less vigilant. However, previous research does support the investigated direction, namely that informing about the risks of biases can lead to less biased decisions (Scopelliti et al., 2015). Future research is needed to show what type of intervention increases vigilance and decreases the potential bias blind spot of supervisory officers. For example, rather than testing the effects of instruction texts, it would be interesting to test whether e-learning, in the form of an online video game, effectively reduces the bias blind spot (e.g., Bessarabova et al., 2016).

Third, we measured 'bias blind spot' with nine biases that were identified by Jansen and Aelen (2015) as relevant for supervisory practice. Next to the provided definitions, we described concrete examples of work situations in which these biases can come to the fore (see Table A1). This was also the case in the original measurement and increases the relevance for supervisory officers. For instance, the following example was used for the *halo-effect*: 'Some people judge the skills of a sympathetic board member more positively than is correct'. These examples may have guided participants in how they rated the probability that this bias might occur in the decision-making of oneself or others. It could be that other examples (e.g., judging a particular product instead of a board member) would have resulted in different scores. Future research should test whether consistent results are found when other examples are used of how biases can manifest in the work situations of supervisory officers. Moreover, in future research, participants could be asked to come up with an example themselves after reading an instruction, which might reinforce the effect of the manipulation.

Practical implications

In this research, we found that supervisory officers demonstrated a so-called bias blind spot, which suggests that supervisory officers are generally unaware of the impact of bias on their own decision-making. Moreover, it appeared that warning against bias was insufficient to reduce the bias blind spot of supervisory officers, and to increase vigilance (i.e., feelings of concern). Reading a reassuring message stating that 'supervisory officers can rely on their experience' made supervisory

officers even less vigilant. As vigilance was associated with a smaller bias blind spot, this message should be avoided in the communication of expectations with regard to how supervisory officers are supposed to reach their decisions.

The results of the current research offer broader practical implications that may support supervisory officers in becoming more vigilant of biases in decision-making. Because supervisory officers may recognise the biases of others, but not biases that potentially impact their own judgements, they would do well to challenge the assumptions made by others (Scopelliti et al., 2015). Decision-making techniques, such as the devil's advocate procedure, might be helpful towards this aim, in which supervisory officers are stimulated to ask critical questions (Sibony, 2020). Supervisory officers would also do well to actively think about group composition when they aim to reach a decision within a group. Bringing different perspectives to the table usually leads to more information sharing and improved decision-making (Rink & Ellemers, 2010). For example, when older and younger supervisory officers make decisions jointly, this could help them to identify hidden assumptions more quickly (Gonzalez-Mulé et al., 2020). This could decrease the risk of bias and, consequently, improve the decision-making of supervisory officers.

Conclusion

In the current research, supervisory officers showed a so-called bias blind spot; that is, they believed that others were more prone to biases than themselves. Further, supervisory officers who perceived themselves as rational and objective decision-makers actually demonstrated a greater bias blind spot, while supervisory officers who were more vigilant showed a smaller bias blind spot. Although a reassuring message made supervisory officers less vigilant of biases, a warning message did not effectively increase vigilance. A broader implication of these findings is that supervisory officers might do well to critically question each other's assumptions and thereby reduce the bias blind spot and its adverse consequences for decision-making.


3

Chapter 3

Quality of group decisions made by board members: A hidden-profile experiment

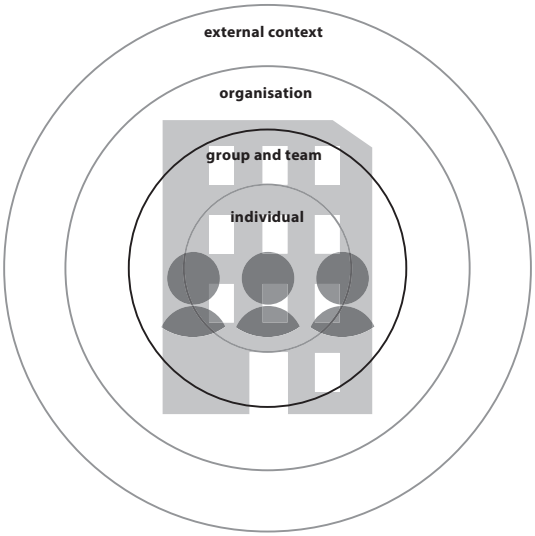
Based on: Coffeng, T., Van Steenbergen, E. F., De Vries, F., & Ellemers, N. (2021). Quality of group decisions by board members: A hidden-profile experiment. *Management Decision, 59*(13), 38-55. https://doi.org/10.1108/MD-07-2020-0893

Author contributions: Coffeng designed the study (including the hidden-profile task and the discussion procedures), collected the data, which included the organisation and facilitation of the practitioner workshops that are reported in this chapter, conducted the data analysis, and authored the manuscript. Van Steenbergen aided in designing the study, interpreting the data, and reviewing and revising the manuscript. De Vries commented on several drafts of the manuscript. Ellemers provided input on the design of the study, presented the data during the practitioner workshops that are reported in this chapter and edited various versions of the manuscript. Throughout this chapter, 'we' refers to the collective authorship of the article.

Abstract

Reaching decisions in a deliberative manner is of utmost importance for boards, as their decision-making impacts entire organisations. The current study aims to investigate (a) the quality of group decisions made by board members, (b) their confidence in, satisfaction with, and reflection on the decision-making, and (c) the effect of two discussion procedures on objective decision quality and subjective evaluations of the decision-making. Supervisory and managing board members of various Dutch non-profit organisations ($N = 141$) participated in a group decision-making task and a questionnaire. Half of the groups received one of two common discussion procedures (i.e., advocacy decision procedure or decisional balance sheet), while the other half received none. Results showed that only a fifth of the groups were successful in choosing the best decision alternative out of three options. It appeared that their initial preference strongly influenced the decision, which indicates that discussion was irrelevant to the outcome. Nevertheless, board members were satisfied with their decision-making. Using a discussion procedure enhanced participants' perception that they adequately weighed the pros and cons but did not improve objective decision quality or other aspects of the subjective evaluation. These findings suggest that supervisory and managing board members are unaware of their biases, which might hinder improvement.

Keywords: board members, decision-making, discussion procedure, hidden-profile



Introduction

A core activity of boards is to carefully consider the pros and cons of different strategic options as they engage in joint decision-making. On a day-to-day basis, board members decide on the strategy and policy of an organisation, which can impact, for instance, who is hired, where budgets are cut, and how risks are managed. One way organisations try to foster sound decision-making at the top level is by forming a diverse board containing members with differing and complementary expertise. Creating informationally diverse boards is recommended as a way to enhance the quality of discussions and decisions as more perspectives are then available to the decision-makers (e.g., Van Knippenberg & Schippers, 2007). In theory, when board members exchange and consider all their unique knowledge and information, this should contribute to the quality of decision-making, and result in better decisions at the highest levels of organisations. Therefore, informationally diverse boards consisting of individuals who can bring different perspectives to the table have the potential to reach better-informed decisions than non-diverse boards.

Nevertheless, meta-analytic findings by Lu et al. (2012) revealed that decision-making groups often fail to share the specialist information that each member individually possesses. Due to group confirmation bias, groups tend to maintain the option that is preferred by most group members prior to discussion, leading to little information sharing and, consequently, biased decisions (e.g., Brodbeck et al., 2007). Although this line of research has mostly been conducted among undergraduate students, a literature review by Sohrab et al. (2015) showed the difficulty in overcoming such pitfalls and, more specifically, that discussion procedures aimed at improving group decision-making are often ineffective. While some discussion procedures succeeded in improving certain aspects of group decision-making, such as information sharing or satisfaction with the decision-making, none of them led to a solid improvement of decision quality (Sohrab et al., 2015). However, it is yet unclear whether similar results would be obtained among highly experienced decision-makers, such as board members (Schulz-Hardt & Mojzisch, 2012). In this study, the central question is: *to what extent are board members prone to group confirmation bias and how does it affect objective decision quality and subjective evaluations of the decision-making?*

Supervisory and managing board members of various Dutch non-profit organisations (N = 141), a population that is often hard to reach for research purposes, participated in a group decision-making task and an individual

questionnaire to evaluate their decision-making process and outcome. According to the *hidden-profile paradigm* (Stasser & Titus, 1985), information was asymmetrically distributed among group members and should have been pooled to discover the best decision alternative. This paradigm is a valuable approach to imitate informational diversity in boards. As most boards are composed of members with differing backgrounds and expertise, the task of each board member is to share complementary information to enrich the decision-making and reach high-quality decisions. Therefore, by applying the hidden-profile paradigm to the decision-making of board members, we are able to make inferences about how well these high-level decision-makers succeed in sharing information to reach the objectively best decision.

The current study aims to investigate (a) the quality of group decisions made by board members, (b) their confidence in, satisfaction with, and reflection on the decision-making, and (c) the effect of two discussion procedures on objective decision quality and subjective evaluations of the decision-making. Investigating these aims via a hidden-profile task provides us with the opportunity to measure decision quality *objectively* in terms of choosing the best decision alternative, and *subjectively* by surveying the extent to which participants are convinced of the correctness of their decision, satisfied with the group process, and perceive themselves as being reflective about the decision-making. Measuring objective decision quality is a major advantage of the hidden-profile paradigm as it is difficult—if not impossible—to measure decision quality objectively in real life (Amason, 1996). This also explains why most board research to date has been focused on the measurement of subjective outcomes (Engbers, 2020). Moreover, with an experimental design, we explore whether the use of one of two discussion procedures (i.e., advocacy decision procedure or decisional balance sheet) influences decision quality and subjective evaluations of the decision-making. Although discussion procedures are frequently used tools that aim to optimise board decision-making, there is no robust evidence that these tools improve decision quality (Sohrab et al., 2015). By providing half of the groups a discussion procedure, while providing no procedure to the other half, we investigate how well board members succeed in sharing information to reach the objectively best decision, and whether using a discussion procedure improves their decision-making.

Pitfalls in group decision-making: The hidden-profile paradigm

Why do decision-making groups often fall short in sharing and processing information? Over the past decades, the hidden-profile paradigm has been

developed and widely used by scholars to examine this question, using a variety of decision-making tasks (Stasser & Titus, 2003). This paradigm entails that the best decision alternative is 'hidden' and should be discovered by sharing all asymmetrically distributed information. Thus, in the hidden-profile paradigm, each group member has different information that should be pooled during the discussion to reach the objectively best decision as a group. Previous hidden-profile studies have convincingly shown that groups are often unsuccessful in sharing the available information. Several review articles (Brodbeck et al., 2007; Schulz-Hardt & Mojzisch, 2012; Sohrab et al., 2015; Wittenbaum et al., 2004) and a meta-analysis (Lu et al., 2012) highlighted that most groups fail at detecting and solving hidden profiles. For example, Stasser and Titus (1985) have shown in their seminal study that 83% chose the best decision alternative when all group members had the same information, while only 18% of the groups did so when the information was asymmetrically distributed (i.e., hidden-profile paradigm). In their review article, Brodbeck et al. (2007) estimated the average solution rate of hidden-profile tasks at between zero and 30%, which indicates that groups are often unsuccessful in sharing all the available information to reach the objectively best decision.

An essential feature of group decision-making that explains these outcomes is that individuals tend to hold on to their initial preference (Stasser & Titus, 2003). Before engaging in joint decision-making, each group member usually has a decision alternative in mind that he or she favours, based on prior experience or previously acquired information. This initial preference is of great value to the individual but can be suboptimal in view of other perspectives which are not yet taken into account. As a consequence, individuals often search for information that confirms their existing beliefs and are reluctant to deviate from their original judgement when contradicting facts are shared by others (Greitemeyer & Schulz-Hardt, 2003). Confirmation bias can also occur at the group level (Brodbeck et al., 2007). In that case, the option that is initially preferred by most group members prior to discussion—the initial majority preference—is chosen as the final group decision. This can be explained by Janis's (1982) groupthink theory, describing the group's desire to reach consensus. Group members then mainly discuss information that supports the initial majority preference, as this course of action leads to agreement more quickly (Wittenbaum et al., 2004). On the one hand, this creates a sense of comfort, as group members perceive themselves as credible and competent decision-makers. On the other hand, this approach hinders reaching high-quality decisions because arguments predominantly come to the fore that provide further support for the initial preference (Schulz-Hardt et al., 2002).

Hence, we anticipate that the decision alternative that has the most support in the group prior to discussion (i.e., the initial majority preference) influences the group decision in such a way that this option is more likely to be chosen. In the current hidden-profile experiment, this is likely to result in low decision quality. At the same time, we anticipate that participants are highly confident about and satisfied with the decision-making and consider themselves to be fairly reflective of the decision-making.

The ineffectiveness of discussion procedures

Although pitfalls in group decision-making are well documented in the hidden-profile literature, little is known about effective ways to overcome them and improve decision quality. At the top level of organisations, 'discussion procedures' are often recommended for enhancing information sharing and improving the quality of decisions (Sohrab et al., 2015; Wittenbaum et al., 2004). As there are many discussion procedures available in organisational practice, which can be categorised as 'role agreements' and 'analysis tools', we test two procedures that we consider especially relevant for hidden-profile tasks. These include one procedure using role agreements (i.e., the advocacy decision procedure) and one analysis tool (i.e., the decisional balance sheet). The *advocacy decision procedure* entails that each group member is assigned to one of several decision alternatives to stimulate dissent and deliberation (Greitemeyer et al., 2006). This tool aims to encourage groups to deviate from the initial majority preference, as it stimulates members to share information about all options that are presented in a hidden-profile task. The *decisional balance sheet* seeks to help individuals or groups to list the pros and cons of various decision alternatives as a way to objectify the decision-making process (Miller & Rose, 2015). In a hidden-profile task, this tool can help structure the process of weighing the pros and cons of all presented options to reach the objectively best decision.

Although discussion procedures are widely used at the top level of organisations, a review article showed no robust effects of particular tools (e.g., devil's advocate, structured discussion, steps for diagnosis) and debiasing training—in which participants learn how to use such tools—on decision quality under hidden-profile conditions (Sohrab et al., 2015). For example, the experiment by Greitemeyer et al. (2006) demonstrated that their advocacy decision procedure enhanced information sharing but not the quality of decisions. Only one study showed a small significant effect of a similar procedure on decision quality in a subset of their sample (N_{groups} = 25; Waddell et al., 2013). As acknowledged by the authors, this subset was, however, too small in sample size to draw firm conclusions. To

the best of our knowledge, no hidden-profile studies are available that directly test the effectiveness of the decisional balance sheet. The current experiment investigates the impact on decision quality of a role-agreement procedure (i.e., advocacy decision procedure) and an analysis tool (i.e., decisional balance sheet) compared to a control condition.

Furthermore, it is yet unknown how discussion procedures affect subjective evaluations of decision-making in hidden-profile tasks. To date, few scholars have investigated whether the use of discussion procedures makes groups more positive or negative about their decision-making—for instance, more or less satisfied (Schulz-Hardt et al., 2002). On the one hand, it can be assumed that the use of discussion procedures provides groups with a sense of security that may enhance satisfaction with the decision-making. On the other hand, using a discussion procedure may lead to more discussion and conflict and, consequently, less satisfaction with the decision-making. To the best of our knowledge, only one hidden-profile study has investigated how the use of a discussion procedure affects confidence in and satisfaction with the decision-making. This study by Schulz-Hardt et al. (2002) found that using an advocacy decision procedure somewhat decreased confidence and increased satisfaction, but these differences were not statistically significant and were thus inconclusive. In the current experiment, we gain more insight into the effects of discussion procedures on participants' subjective evaluations. It may be that the use of discussion procedures increases participants' satisfaction with the decision-making but does not improve objective decision quality. In that case, using a discussion procedure could foster the potential hazard of overconfidence—that is, thinking you are right even when you are wrong.

Method

Participants and design

Supervisory and managing board members of various Dutch non-profit organisations were invited to one of six regional member meetings organised by their professional association. Managing board members of non-profit organisations are responsible for strategic planning as well as the day-to-day management of the organisation (Cornforth & Edwards, 1999). Supervisory board members of non-profit organisations have the primary duty to monitor, advise, and appoint the managing board. At these non-profit organisations, board members are not volunteers but receive substantial salaries and professional

training. The six meetings with an identical setup took place within the same year at various locations in the Netherlands (i.e., Zwolle, Amsterdam, Eindhoven, and three times in Utrecht). In four out of the six meetings, groups used a discussion procedure during decision-making (i.e., experimental condition), while in the other two, the groups did not use any procedure (i.e., control condition). Whether a participant was part of the experimental condition or the control condition was dependent on which meeting the participant attended.

A total of 141 board members participated, of whom 105 (74%) were supervisory board members and 36 were managing board members. At the start of each meeting, participants were randomly assigned to groups of three (N_{groups} = 47), which led, by chance, to 28 (60%) *mixed groups* of supervisory and managing board members, and 19 *homogeneous groups* of supervisory board members only. Of the 47 groups in total, 24 were part of the control condition, and 23 were part of the experimental condition. In the experimental condition, eight groups used the decisional balance sheet and 15 groups used the advocacy decision procedure. As initial analyses did not reveal significant differences between the two discussion procedures on any of the dependent variables, they were collapsed into one experimental condition. This procedure led to more mixed groups in the control condition than in the experimental condition (19 vs 9; $X^2(1, N = 47) = 7.82$, $p = .005$).

We did not ask participants for demographic information other than their function title (i.e., supervisory board member or managing board member) because other types of diversity (e.g., gender, ethnicity) besides informational diversity were beyond the scope of this study. Moreover, as it is unusual for supervisory and managing board members to participate in an experimental study, we did not want to raise concerns about anonymity.

Materials

The group decision-making task was based on the hiring task developed by Schulz-Hardt et al. (2006) and was aligned with the profession of the participants to make it as realistic as possible. Board members were instructed to choose the best candidate for a managerial position at a fictitious organisation. Groups had to choose from three candidates, named A, B, and C, of which candidate B was the objectively best candidate. Groups based their decision on candidate profiles, each consisting of ten characteristics. The selection of these characteristics was based on official documents listing the desired competencies of board members in the profession that we examined. Examples of positive characteristics

of candidate B were '[The candidate] motivates, develops, and guarantees professional competence of employees and makes decisions as much as possible in consultation' and '[The candidate] reflects on and learns from one's professional conduct and stimulates this within the organisation'. Examples of negative characteristics were '[The candidate] delays decision-making by continuously searching for information' and '[The candidate] has difficulty holding on to long-term goals due to emerging interests of different parties'. All materials were constructed in the Dutch language and are available upon request to the first author.

The hidden-profile paradigm required that some parts of the information were available to all group members (i.e., shared information), while other parts were not (i.e., unshared information). Before group decision-making, each participant received information sheets that specified three positive and three negative characteristics of candidate B, and four positive and two negative characteristics of candidates A and C. Because of the asymmetrical distribution of information, group members would be tempted to prefer candidate A or C over candidate B. However, if group members succeed in pooling all the available information into complete candidate profiles, they would realise that candidate B has seven positive and only three negative characteristics, whereas candidates A and C have four positive characteristics alongside six negative characteristics (see Table 5).

Table 5. Asymmetrical distribution of information, based on Schulz-Hardt et al. (2006)

	Candidate		
Information type and valence	**A**	**B**	**C**
Shared information			
Positive	4	1	4
Negative	0	3	0
Unshared information			
Positive	0	6	0
Negative	6	0	6
Available information to each individual			
Positive	4	3	4
Negative	2	3	2
Available information to the group			
Positive	4	7	4
Negative	6	3	6

As a pre-test, eight supervisory and managing board members who were part of the organising committee of the member meetings were asked to rate all 30 characteristics on a 5-point scale (1 = very negative, 5 = very positive) and to privately write down their preferred candidate. Based on the complete candidate profiles, all board members individually chose candidate B as the best candidate. This confirmed the intended setup of presenting this candidate as the objectively best decision alternative. Hence, when all the available information was considered, candidate B should be recognised as the objectively best candidate.

Procedure

Upon arrival at the meeting, participants were randomly assigned to groups of three by providing them with a name tag displaying a group number. The instructor briefly introduced the aim and the procedure of the experiment and asked participants to sign the informed consent form if they agreed that their data could be used anonymously for scientific purposes. Only when all three group members had signed the informed consent form was the group included in the analyses. The experiment consisted of three phases: (a) indicating the initial preference, (b) group decision-making, (c) subjective evaluation.

Indicating the initial preference

First, the instructor introduced the task of jointly choosing the best candidate for a managerial position at a fictitious organisation and handed out the candidate information sheets. Participants were instructed to individually read and memorise the information about the candidates in preparation for group decision-making and to privately write down which candidate they individually preferred. Participants were asked not to discuss their information sheets with their group members at this stage and not to make notes. On the information sheets, it was explained that the three candidates had been selected by a recruitment agency based on letters and first-round interviews where the three candidates were evaluated on the desired competencies. The information sheets emphasised that the competencies were all considered equally important by the organisation for which the selection was made. Ten minutes were available for this task. All candidate information sheets were then collected.

Group decision-making

Second, groups were instructed to reach a joint decision based on the information they had just read. In line with previous hidden-profile research, the instructor emphasised that one of the candidates was the objectively best candidate and that it was the group's task to find out which one this was. Participants were not

explicitly told that their information was different from other group members or that it was crucial to share all the available information to discover the best candidate. In the control condition, the instructor did not provide groups with a discussion procedure but just asked them to jointly reach a decision. In the experimental condition, the instructor handed groups a discussion procedure, namely the advocacy decision procedure or the decisional balance sheet.

For the *advocacy decision procedure*, the instructor handed out three cards with 'A', 'B', and 'C' to each group, representing the three candidates. Participants were asked to blindly draw one of the cards, to determine which candidate they individually had to represent within their group (e.g., when a participant drew the card with an 'A', this meant that he or she had to advocate for candidate A during discussion). In this way, it was assured that each candidate had a representative. Next, participants were instructed to discuss anything they remembered about this candidate—both positive and negative characteristics—and to invite group members to respond or add to this by taking turns. Participants were also told not to express their initial preference in this process and to reach a joint decision by weighing the pros and cons of all candidates.

For the *decisional balance sheet* procedure, the instructor handed out a sheet to each group, displaying a table that listed all ten competencies (in rows) and the three candidates (in columns). Participants were instructed to rate each competency as positive (+) or negative (–) for all three candidates, based on the information about the candidates they had just read. Participants were also told that they should weigh these pros and cons to reach a joint decision and that it might be necessary to deviate from their initial preference.

In all conditions, as soon as groups had reached a unanimous group decision, they were asked to raise their hands so that the instructor could register the time spent on the discussion. Fifteen minutes were available for this task.

Subjective evaluation

Third, participants received an individual questionnaire. On this questionnaire, participants noted the group decision and privately evaluated the decision-making process and outcome, specifically their confidence in the correctness of the decision, satisfaction with the group process, and reflection on the decision-making. Additionally, they described—using keywords—what they remembered about each candidate. Participants were asked not to discuss the questionnaire with other group members at this stage. Five minutes were available for this task.

The experiment took 30 minutes in total. During the final hour of the meeting, the instructor gave an interactive presentation about the topic in which the best candidate was revealed and participants discussed their experiences.

Measures

The *initial preference* of each group member was derived from the candidate information sheets on which participants individually noted their initial preference prior to the discussion. When two or three members of a group initially preferred the same candidate, this group was coded as 1 = majority (vs 0 = no majority).

Objective decision quality was derived from the questionnaire that was completed by participants after group decision-making (i.e., the post-decision-making questionnaire) on which participants wrote down the candidate their group had chosen. Decision quality was coded as 1 = best candidate (B) chosen (vs 0 = suboptimal candidate (A or C) chosen).

Subjective evaluation of the decision-making was assessed with three measures—confidence in the decision, satisfaction with the group process, and reflection on the decision-making—which were measured on a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree in the post-decision-making questionnaire. *Confidence in the decision* was measured with a single item: 'I have the feeling that my group chose the best candidate'. *Satisfaction with the group process* was measured with three items: 'I have the feeling that my group … substantiated its decision well', '…reached its decision in a good manner', '… reached its decision at a good pace' (α = .74). *Reflection on the decision-making* was measured with two items: 'In my group, I have tried to …be critical of my initial preference', '…weigh the pros and cons of all candidates'. Thus, participants were asked to indicate the extent to which they reflected on their initial preference and the pros and cons of different options. Because of the construct's low reliability (α = .28), the two items were examined as separate indicators of reflection on the decision-making (i.e., reflection on the initial preference and reflection on the pros and cons). For each measure, mean scores were computed for all groups.

In the post-decision-making questionnaire, participants were asked to recall information about each candidate: 'What information about the candidates do you remember? Please use keywords'. The first author and an independent researcher working at the same university coded the keywords for each candidate into one of three categories: 1 = predominantly negative, 2 = neutral, 3 = predominantly positive. There was high inter-rater reliability: $ICC2_{candidateA}$ = .90 (95% CI [.86, .93]),

$ICC2_{candidateB}$ = .91 (95% CI [.87, .94]), $ICC2_{candidateC}$ = .84 (95% CI [.77, .88]). Therefore, the coding was averaged for each participant and mean scores were computed for all groups.

Time spent on discussion was registered by the instructor in minutes and seconds when groups indicated that they had reached a decision.

Results

Objective decision quality and subjective evaluations

Only eight out of 42 groups (19%) chose the best candidate (i.e., out of 47 groups, five groups did not reach a decision). As can be seen in Table 6, considering the scale midpoint, groups were quite confident about the correctness of their decision and were satisfied with their group process. Moreover, they perceived themselves as fairly reflective of their initial preference and their assessment of the pros and cons. Thus, as anticipated, even if decision quality was low, groups were confident about and satisfied with the decision-making process and outcome, and considered themselves to be reflective of the decision-making. Interestingly, the subjective measures and the time spent on discussion were not significantly correlated with objective decision quality. These findings suggest that subjective evaluations of the decision-making and time spent on discussion do not predict higher decision quality.

Table 6 further shows that, among the study variables, confidence was positively correlated with satisfaction and reflection on the initial preference (i.e., the more confident groups were about their decision, the more satisfied they were with the group process and the more they considered themselves to be reflective of their initial preference). Further, having an initial majority preference was associated with higher confidence and satisfaction. This finding suggests that groups with an initial majority preference were more convinced of and more satisfied with their decision-making than groups without an initial majority preference. Time spent on discussion was negatively correlated with confidence and satisfaction, which indicates that groups who spent less time on discussion were more confident about and satisfied with their decision-making. Furthermore, decision quality was positively associated with recalling information about candidate B and negatively with recalling information about candidate C, which indicates that groups that had chosen the objectively best candidate (B), remembered this candidate more positively and remembered candidate C more negatively.

As shown in Table 6, condition was correlated with reflection on the pros and cons and with time spent on discussion, which provides a first indication that the use of a discussion procedure affects some aspects of the decision-making. Therefore, we additionally test whether using a discussion procedure affected time spent on discussion. Lastly, the correlation between type of group and reflection on the pros and cons indicates that mixed groups perceived themselves as less reflective of the pros and cons than homogeneous groups. As described previously, there were more mixed groups in the control condition than in the experimental condition. Therefore, type of group is included as a control variable when comparing the experimental condition to the control condition.

Table 6. Means, standard deviations, and correlations for study variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Condition (0 = control, 1 = experimental)			-										
2. Initial preference (0 = no majority, 1 = majority)			.06	-									
3. Decision quality (0 = suboptimal candidate, 1 = best candidate)			-.12	.22	-								
4. Confidence	4.99	1.13	-.03	.48**	-.02	-							
5. Satisfaction	5.46	.66	.06	.34*	-.01	.50**	-						
6. Reflection: initial preference	4.88	.74	.07	.07	.15	.36*	.25	-					
7. Reflection: pros and cons	5.71	.67	.40**	.03	.04	.11	.23	.01	-				
8. Recall: candidate A	2.17	.57	.01	-.05	-.11	-.04	-.11	-.14	.10	-			
9. Recall: candidate B	1.98	.60	.06	.08	.36*	-.15	-.13	-.27	.14	-.08	-		
10. Recall: candidate C	2.28	.51	.01	-.07	-.53**	.14	.12	-.09	.22	.24	-.16	-	
11. Time spent on discussion	11.44	3.52	.33*	-.11	-.05	-.43**	-.43**	-.03	.07	-.01	.16	-.23	-
12. Type of group (0 = homogeneous, 1 = mixed)			-.41**	.18	-.24	.04	.15	-.03	-.33*	.04	.05	.04	.04

Note. * $p < .05$, ** $p < .01$.

Influence of the initial majority preference

In 35 of the 42 groups, there was an initial majority preference (i.e., two or three group members preferred the same candidate). More specifically, in 28 groups, two out of three group members preferred the same candidate; in seven groups, all three group members preferred the same candidate. To test whether the initial majority preference influenced the group decision, a Chi-square test was

conducted among the 35 groups with an initial majority preference. Results showed that there was a strong effect of the initial majority preference on the group decision, $X^2(4, N = 35) = 35.14$, $p < .001$. Of the 35 groups, 29 groups (83%) chose the option that was initially preferred by the majority of the group. To provide more detail, Table 7 shows that 74% of the groups in which the majority initially preferred candidate B also chose candidate B as their final decision. In the same vein, 67% maintained their initial majority preference for candidate A, and 94% maintained their initial majority preference for candidate C. Thus, as anticipated, the initial majority preference strongly influenced the group decision, which suggests group confirmation bias.

Table 7. Initial majority preference by group decision

		Group decision			
Initial majority preference		**A**	**B**	**C**	**Total**
A	*N*	6	1	2	9
	%	67%	11%	22%	100%
B	*N*	1	6	1	8
	%	13%	74%	13%	100%
C	*N*	0	1	17	18
	%	0%	6%	94%	100%
Total	*N*	7	8	20	35
	%	20%	23%	57%	100%

As can be derived from Table 7, merely six groups deviated from the initial majority preference. It is interesting to note that in four of these six groups, the chosen candidate was initially preferred by the 'minority group member', who preferred a different candidate than the other two group members. In the other two groups, no one initially preferred the candidate that was later chosen by the group. Thus, in most instances, for a candidate to be chosen, there was at least one group member who preferred this option prior to discussion.

One-way analyses of variance (ANOVA) revealed that the initial majority preference influenced the extent to which positive information was recalled about that candidate (see Table 8). For example, when candidate B was initially preferred by the majority, more positive information was recalled about this candidate in comparison to the other two candidates. Thus, the initial majority preference influenced the group decision and the amount of positively recalled information about this candidate, which on average resulted in low objective decision quality but positive subjective evaluations of the decision-making.

Table 8. One-way ANOVA of recall by initial majority preference

Variable	Initial majority preference	*M (SD)*	Univariate effect of initial majority preference	Univariate effect of initial majority preference (in bold) vs other two candidates [Contrast Test]
Recall: candidate A	**A**	**2.50 (.38)**	$F(2,32) = 3.17$, $p = .055$	Contrast A vs B and C: $t(32) = 2.51$, $p = .017$
	B	1.96 (.65)		
	C	2.02 (.51)		
Recall: candidate B	A	1.48 (.51)	$F(2,32) = 9.03$, $p = .001$	Contrast B vs A and C: $t(32) = 3.72$, $p = .001$
	B	**2.54 (.53)**		
	C	2.04 (.51)		
Recall: candidate C	A	2.13 (.48)	$F(2,32) = 5.43$, $p = .009$	Contrast C vs A and B: $t(32) = 3.09$, $p = .004$
	B	1.83 (.33)		
	C	**2.48 (.53)**		

As this study aimed to examine how the initial majority preference influences group decision-making, the seven groups in which each member preferred a different candidate were not included in the analyses just described. However, it is interesting to note that none of these groups chose the objectively best candidate (i.e., three groups chose candidate A and four groups chose candidate C). Because of the small number of groups, it was not possible to adequately test whether groups without an initial majority preference did significantly better or worse on the decision-making task than groups with an initial majority preference. However, to provide some insight into all 42 groups that reached a decision, we examined the relationship between the number of group members that initially preferred the objectively best candidate (B) and the group decision. Results showed that when more group members initially preferred candidate B, there was a higher chance that this objectively best candidate was chosen by the group (see Table E1).

Effects of using a discussion procedure

To explore whether using a discussion procedure affected objective decision quality, a Chi-square test was performed to compare the experimental condition to the control condition. Type of group was included as a control variable. Results showed that the experimental condition was not significantly different from the control condition, $X^2(1, N = 42) = .62$, $p = .432$. Three out of 21 groups (14%) in the experimental condition chose the best candidate, as did five out of 21 groups (24%) in the control condition. These results were similar for both types of groups

(i.e., homogeneous groups: $X^2(1, N = 16) = .87$, $p = .350$ vs mixed groups: $X^2(1, N = 26) = 1.80$, $p = .180$). Thus, using a discussion procedure did not improve objective decision quality.

To test the extent to which the use of a discussion procedure influenced the subjective dependent variables (i.e., confidence in the decision, satisfaction with the group process, reflection on the initial preference, reflection on the pros and cons) and time spent on discussion, a multivariate analysis of covariance (MANCOVA) was conducted. Type of group was included as a control variable. This analysis revealed significant multivariate main effects of condition ($F(5,38) = 4.42$, $p = .003$) and type of group ($F(5,38) = 2.81$, $p = .029$), but no significant multivariate interaction effect between condition and type of group ($F(5,38) = 2.07$, $p = .090$). The univariate effects in Table 9 showed that condition influenced reflection on the pros and cons and time spent on discussion. Groups that used a discussion procedure perceived that they better weighed the pros and cons and spent more time on discussion than groups that did not use a discussion procedure. As there were no interaction effects between condition and type of group on these variables, these effects did not depend on type of group.

Although there was no significant multivariate interaction effect between condition and type of group, there was a significant univariate interaction effect on satisfaction (see Table 9). Using a discussion procedure increased satisfaction with the group process in homogeneous groups but not in mixed groups. Specifically, homogeneous groups were less satisfied with the group process than mixed groups in the control condition but similarly satisfied as mixed groups in the experimental condition (see Table 9). Finally, there was no effect of condition on confidence and reflection on the initial preference. In summary, using a discussion procedure did not improve objective decision quality or confidence in the decision and reflection on the initial preference. However, using a discussion procedure enhanced participants' impression that they adequately weighed the pros and cons and increased the time that was used to reach a joint decision. Moreover, among homogeneous groups, using a discussion procedure increased satisfaction with the group process.

Table 9. MANCOVA of subjective DV's and time spent on discussion by condition and type of group

Variable by condition	Total *M (SD)*	Type of group: Mixed group *M (SD)*	Type of group: Homo-geneous group *M (SD)*	Univariate effect of condition	Univariate effect of type of group	Univariate effect of condition * type of group
Confidence				$F(1,42) = .01$, $p = .922$	$F(1,42) = .04$, $p = .847$	$F(1,42) = .02$, $p = .884$
Control	5.01 (1.11)	5.02 (1.17)	5.00 (.94)			
Experimental	4.96 (1.18)	5.04 (1.11)	4.90 (1.26)			
Satisfaction				$F(1,42) = 2.05$, $p = .160$	$F(1,42) = 2.89$, $p = .097$	**$F(1,42) = 4.90$, $p = .032$**
Control	5.42 (.65)	5.60 (.39)	4.78 (1.02)			
Experimental	5.50 (.68)	5.43 (.56)	5.54 (.76)			
Reflection: initial preference				$F(1,42) = .02$, $p = .900$	$F(1,42) = .01$, $p = .911$	$F(1,42) = .67$, $p = .417$
Control	4.85 (.71)	4.80 (.73)	5.03 (.67)			
Experimental	4.93 (.80)	5.04 (.68)	4.86 (.88)			
Reflection: pros and cons				**$F(1,42) = 6.03$, $p = .018$**	$F(1,42) = 1.32$, $p = .257$	$F(1,42) = 2.00$, $p = .165$
Control	5.44 (.65)	5.45 (.72)	5.40 (.37)			
Experimental	5.99 (.61)	5.67 (.62)	6.19 (.52)			
Time spent on discussion				**$F(1,42) = 7.41$, $p = .009$**	$F(1,42) = 1.56$, $p = .219$	$F(1,42) = .01$, $p = .908$
Control	10.12 (3.67)	10.39 (3.77)	9.14 (3.46)			
Experimental	12.60 (2.93)	13.52 (2.07)	12.01 (3.31)			

Discussion

Composing boards of individuals with differing backgrounds and expertise theoretically increases the possibility of drawing on a broader and more diverse range of insights and information and, in turn, making better-informed decisions. However, previous hidden-profile research among student samples suggests that groups often fail to share all the available information. This can be explained by the group's tendency to stay with the option that is initially preferred by the majority, leading to biased decisions (e.g., Brodbeck et al., 2007). To what extent are board members prone to this group confirmation bias and how does it affect objective decision quality and subjective evaluations of the decision-making? In this study, supervisory and managing board members were invited to participate in a group decision-making task, with the aim to investigate not only how they

subjectively evaluate their confidence in, satisfaction with, and reflection on the decision-making but also objective decision quality. Additionally, we examined whether the use of a discussion procedure influenced the quality of decisions and subjective evaluations of the decision-making.

The current study found that most groups of board members were unsuccessful in reaching the objectively best decision when information was asymmetrically distributed (i.e., hidden-profile paradigm). Only a fifth chose the objectively best option out of three alternatives presented, which is in line with previous hidden-profile studies among student samples (Brodbeck et al., 2007). This finding suggests that board members are just as unsuccessful as undergraduate students in reaching high-quality decisions under hidden-profile conditions. That is, when board members individually possessed all the available information (in the pre-test), they easily identified the objectively best decision alternative. When that information was, however, asymmetrically distributed (in the hidden-profile task), most groups of board members were unable to choose the best decision alternative. Nonetheless, the participating board members were quite confident about the correctness of their decision and satisfied with the group process. Moreover, they perceived themselves as fairly reflective of their initial preference and their assessment of the pros and cons. These subjective evaluations and also the time spent on discussion were not predictive of objective decision quality. This suggests that board members can be overconfident about the quality of their decisions.

Moreover, groups predominantly based their decision on the initial majority preference. When most group members initially preferred a particular candidate, this option was most likely to be chosen and also more positively remembered. This indicates that even experienced and professional decision-makers such as board members are prone to group confirmation bias (Schulz-Hardt et al., 2002), which might explain why board members failed to share all the available information and, consequently, to reach the objectively best decision. For the few groups that did deviate from the initial majority preference, the group decision was usually initially preferred by a 'minority' group member, who preferred a different candidate than the other group members. This suggests that this minority group member was successful in convincing the other group members (i.e., the majority) to choose one's initial preference. Possibly, this person was an 'influencer', who can be characterised as an independent, powerful, or dominant group member (Johnson et al., 1996; Zajac & Westphal, 2005). It could also be that this person was part of a group that was particularly cooperative or participative

and, therefore, more open to dissent (De Dreu & West, 2001; Toma et al., 2013). Future research could shed more light on group processes in board decision-making where minority influence comes to the fore.

Lastly, the use of a discussion procedure (i.e., advocacy decision procedure or decisional balance sheet) did not improve objective decision quality. Although these tools may have provided more structure to the discussion, this finding suggests that participants were still guided by the initial majority preference and were not making better decisions when using a tool. Moreover, the use of a discussion procedure enhanced participants' impression that they had adequately weighed the pros and cons and increased the time spent on the discussion. Furthermore, the use of a discussion procedure made homogeneous groups more satisfied with the group process. In summary, when using a discussion procedure, board members were more positive about certain aspects of their decision-making and used more time to reach a decision even though they were not making better decisions. These results suggest that using a discussion procedure or tool activates a false sense of security—believing that the procedure supports the decision-making when this is, in fact, not the case.

Limitations and future research

Although the opportunity to experiment during member meetings allowed us to collect data among a sample of high-level decision-makers, it came with some practical constraints. First, we were dependent on the number of supervisory and managing board members that attended the member meetings, which resulted in a relatively small sample size. However, our sample of 47 groups was not unusual as a meta-analysis showed a range of 14 to 184 groups that participated in previous hidden-profile studies, predominantly using student samples (Lu et al., 2012). Moreover, as the current study found large effect sizes on the objective dependent variables, we remain confident about the results of this study. Furthermore, the current study was conducted among board members of non-profit organisations. We think it is likely that the overall processes described in this research can occur in for-profit as well as non-profit boards. For example, Zhu et al. (2016) found that for-profit and non-profit boards share just as much information about internal resources, risks, and strategic planning during board meetings. Future hidden-profile research should test whether similar results are found among boards of for-profit and non-profit organisations.

Second, even though most groups quickly reached a decision (i.e., in less than 12 minutes), the available time for the experimental procedure was relatively short (i.e., 30 minutes) compared to previous hidden-profile studies, such as 100 minutes in Schulz-Hardt et al. (2006). It is possible that participants could have recalled and shared more information if they had had more time. In real life, however, board members usually have to memorise large amounts of information prior to board meetings where decisions are made and recall information from the top of their minds during those meetings. Therefore, we think our findings are relevant to the applied context of board decision-making. Although in this study, time spent on discussion did not predict decision quality, it could be of interest for future research to examine whether spending more time on preparation and discussion improves real board decision-making. As this might depend on the type of decision-making, researchers could compare board decisions that require quick action (e.g., public relations issues) vs decisions that provide more time for consideration (e.g., annual planning).

Third, although the design of the current study enabled us to measure decision quality objectively, which is difficult to do in real life, we were not allowed to record actual information-sharing behaviour, reflective behaviour, or other behavioural mediators. It would be interesting for future research to record the decision-making process to gain more insight into when and why board members do or do not share information. As previous research has shown that providing access to information during a discussion can increase information sharing (Sohrab et al., 2015), it should be tested in future research whether this is also the case for board members. If so, this would imply that board members in actual practice should explicitly use and rely on information during group decision-making. Also, familiarity between board members and past experience of working together are relevant factors to consider in future studies, as these previously have been negatively linked to information sharing (e.g., Phillips et al., 2004). Lastly, individual characteristics of board members (e.g., dominant personality) and group characteristics (e.g., cooperative norm) could be considered, as these might also impact information sharing and group decision-making.

Practical implications

The results of this study indicate that board members were unsuccessful in sharing all the available information and reaching the objectively best decision because they were biased by the initial majority preference. Creating informational diversity by composing boards of members with divergent knowledge may, therefore, not be sufficient to mitigate group confirmation bias. Although human

judgement and decision-making may never become flawless, board members should realise that the initial majority preference may not be the optimal decision and is likely to be based on incomplete information. It might be helpful to ask members about the explicit and implicit information they individually possess. In this way, boards can find out which information is still missing and necessary for a full picture. Otherwise, the risk of making suboptimal decisions increases with detrimental consequences; for instance, one possible outcome is that the less competent candidate for a managerial position gets chosen.

Furthermore, the current study showed that using a discussion procedure increased participants' perception that they adequately weighed the pros and cons of all options but did not improve objective decision quality. This suggests that board members can become overconfident and should, therefore, be careful when relying on their subjective evaluations (see also Coffeng et al., 2021a). Moreover, care should be taken with applying unproven tools, as using them can create a false sense of security and might hinder information sharing. As the effectiveness of procedures may strongly depend on the context in which they are used (Sohrab et al., 2015), board members could invest more in creating a supportive context. In hidden-profile research to date, elements of a supportive context have received limited attention, even though several possible ingredients for intervention have been suggested (e.g., chairmanship, team climate, accountability arrangements; for an overview, see Sohrab et al., 2015). For instance, a discussion procedure, such as the advocacy decision procedure, might only be effective when the chairman allows for dissenting views. Hence, rather than using 'quick fixes', such as discussion procedures or tools, intervening on contextual elements might be more effective to improve information sharing and decision quality in the boardroom.

Conclusion

In a group decision-making task, supervisory and managing board members were influenced by the initial majority preference, leading to biased decisions. Nevertheless, these high-level decision-makers were satisfied with their joint decision-making. The use of discussion procedures did not improve decision quality but only provided a false sense of security, as it enhanced participants' impression that they adequately weighed the pros and cons of all options. Therefore, board members should be careful with relying on unproven discussion procedures. Further, they should realise that the initial majority preference may not be the optimal decision so as to diminish the risks of group confirmation bias and overconfidence.


4

Chapter 4

Reflective and decisive supervision: The role of participative leadership and team climate in joint decision-making

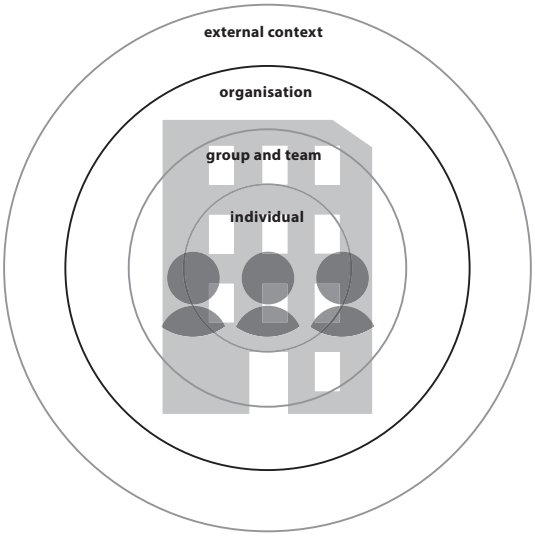
Based on: Coffeng, T., Van Steenbergen, E. F., De Vries, F., Steffens, N. K., & Ellemers, N. (2021). Reflective and decisive supervision: The role of participative leadership and team climate in joint decision-making. *Regulation & Governance*. Advance online publication. https://doi.org/10.1111/rego.12449

Author contributions: Coffeng designed the studies (including the development of the Joint Decision-Making Questionnaire), collected the data, conducted the data analysis, and authored the manuscript. Van Steenbergen aided in designing the studies, interpreting the data, and reviewing and revising the manuscript. De Vries gave input on the questionnaire design and commented on several drafts of the manuscript. Steffens provided conceptual input and edited various versions of the manuscript. Ellemers provided input on the design of the studies and edited several versions of the manuscript. Coffeng, Van Steenbergen, and Ellemers presented the data during the professional conferences that are reported in this chapter and to the board of the examined organisation. Throughout this chapter, 'we' refers to the collective authorship of the article.

Abstract

Supervisory bodies, such as inspectorates and market authorities, can intervene in organisational practices that may harm society, but their effectiveness to do so depends on their ability to make decisions *reflectively* and *decisively*. Are these tendencies incompatible with each other or can they go together? To what extent can empowering leadership (i.e., participative, coaching, and informing behaviours) simultaneously stimulate the reflectiveness and decisiveness of supervisory teams? A 10-item Joint Decision-Making Questionnaire was developed and tested among two samples of external (N = 87) and internal (N = 158) supervisors. Results showed a positive association between reflectiveness and decisiveness, indicating that these tendencies can be reconciled in joint decision-making and are not at odds with each other (Study 1a and Study 1b). An examination of 44 supervisory teams further revealed that participative leadership relates to more reflectiveness and decisiveness, via a team climate characterised by cooperative trust and goal commitment (Study 2). Moreover, teams that experienced higher levels of cooperative trust and goal commitment prior to the COVID-19 crisis reported that they acted more reflectively and decisively during this crisis (Study 3). Hence, participative leaders can foster both reflectiveness and decisiveness to reach informed and timely decisions by promoting cooperative trust and goal commitment within teams.

Keywords: COVID-19, decision-making, participative leadership, team climate



Introduction

Supervisory bodies, such as inspectorates and market authorities, are responsible for monitoring whether a regulated organisation or market complies with the law and acts accordingly. When this is not the case, supervisory bodies have to decide on appropriate measures and take action to redirect undesirable behaviours. The measures and sanctions at their disposal (ranging from a warning to license revocation) impact the reputation of targeted organisations and can intervene with their ability to continue their activities. The awareness among supervisory bodies that their decisions can have such far-reaching consequences—and might be challenged in a court of law—prompts them to act carefully in collecting and weighing all available evidence before deciding to take action. However, this approach can delay decision-making and can postpone formal intervention that is sometimes needed to prevent harm to society.

The notion that supervisory bodies sometimes unnecessarily delay decision-making matches public perceptions of incidents and scandals that have emerged in regulated organisations and markets. Journalists and politicians often comment that businesses can be expected to bend the law but blame the responsible supervisory bodies for not having acted sooner or firmer. This poses a potential dilemma for supervisory bodies. If they act very decisively without sufficient deliberation, their verdicts may be inaccurate or suboptimal. If they take a long time, intending to act reflectively, they may forego the opportunity to take action before social damage is done. Although one might think that reflectiveness undermines decisiveness or vice versa, it is still unclear whether these tendencies are indeed incompatible with each other or rather go hand in hand. In this contribution, we examine the extent to which supervisory bodies can reach decisions reflectively an*d* decisively; moreover, we investigate the role of empowering leadership in creating the conditions that foster this.

What are the real-life consequences when supervisory bodies fail to act reflectively and decisively? A study comparing investigation reports of incidents in the Netherlands and the United Kingdom revealed that in many cases supervisory bodies did not live up to their responsibility to prevent social harm because of inaccurate and, in particular, untimely decision-making (Ottow, 2015a). This study provides sufficient examples of supervisory bodies that did not take appropriate action or refrained from taking any action when corrective measures were in order. For example, Icesave Bank and DSB Bank were banks that went bankrupt, resulting in losses for their clients and severe harm to society. In both cases, the

investigative committees argued that the responsible supervisory bodies spent too much time trying informal means rather than taking formal measures. They were considered too optimistic in their view that conversations could still lead to adequate solutions. Consequently, no formal actions were taken in these particular cases.

This suggests that supervisory bodies can be prone to insufficient decisiveness by spending too much time analysing alternative strategies, which then delays decision-making on formal supervisory measures. This was also the conclusion of the International Monetary Fund (Viñals et al., 2010) in their influential report on the role of supervisory bodies in the global financial crisis of 2008. In their report, the IMF urged supervisory bodies to increase their willingness to act, which was lacking before and during this crisis. Likewise, and more recently in Australia, the Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry (2019) blamed the responsible supervisory bodies for their inability to detect and sanction malpractice in banking, despite several alarming signals that were brought to their attention. These examples all point to the importance of decisive action by supervisory bodies to minimise harm to society.

Nevertheless, previous research on decision-making has paid limited attention to increasing decisiveness, focusing instead on stimulating reflectiveness (e.g., De Dreu et al., 2008). In this prior research, much emphasis has been placed on the significance of devoting time to the joint analysis of information as a primary strategy to reach high-quality decisions. For supervisory bodies, as indicated above, the problem might not always be that too little time is spent on deliberation, but rather that no timely action is taken. Therefore, it is important to consider decisiveness as a key aspect of joint decision-making, next to reflectiveness. We define *reflectiveness* as indicating the decision-making group's activities to examine their assumptions and alternative views, and *decisiveness* as capturing their actions to maintain momentum and reach decisions quickly. In the studies reported here, we explore whether reflectiveness and decisiveness can go hand in hand, enabling informed and timely decisions.

Furthermore, we examine how reflectiveness and decisiveness can be stimulated simultaneously. Because team leaders strongly influence how teams behave and reach their decisions, even more than formal policies and procedures (Kish-Gephart et al., 2010), we evaluate how *empowering leadership* can foster reflectiveness and decisiveness (Arnold et al., 2000). Building on prior research that showed that leaders' participative, coaching, and informing behaviours play

an important role in promoting employee engagement in decision-making (Gao et al., 2011), we examine how these empowering leadership behaviours relate to the reflectiveness and decisiveness of supervisory teams. We also address the underlying process, by examining whether a team climate of cooperative trust and goal commitment mediates this relationship. Moreover, we investigate these relationships just before and during the COVID-19 crisis as a means to establish the extent to which the abrupt shift to working from home impacted teams' reflectiveness and decisiveness.

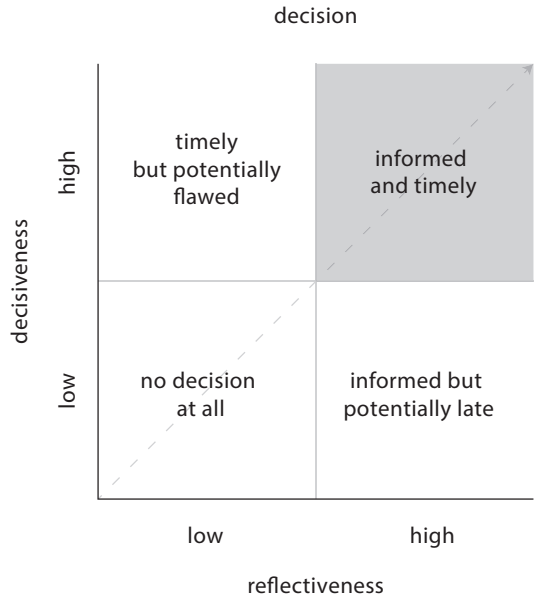
The current research has three aims: (a) to explore how reflectiveness and decisiveness are interrelated, (b) to examine how empowering leadership is related to the reflectiveness and decisiveness of supervisory teams, and (c) to investigate how the onset of the COVID-19 crisis impacted teams' reflectiveness and decisiveness. So far, investigations have primarily addressed regulatory decision-making in response to specific incidents. These case studies often take a macro-level approach by examining the political-administrative circumstances impacting certain regulatory decisions. This implies that less effort has been made to understand how regulatory decision-making is shaped by the social context—that is, within organisations—in which supervisory officers operate on a day-to-day basis. By developing a 10-item Joint Decision-Making Questionnaire and testing it among supervisory officers working at various supervisory bodies, this research offers more structured insights into meso-level factors that contribute to regulatory decision-making.

How are reflectiveness and decisiveness interrelated?

For societies to survive and thrive, supervisory bodies need to act both reflectively and decisively. As supervisory bodies are often criticised for their lack of decisiveness, this aspect is especially relevant to pay attention to when examining their decision-making. In studies on decision-making to date, behavioural scientists have mainly focused on increasing deliberation as a way to improve the quality of decision-making. For example, motivated information processing has been shown to increase the systematic consideration of differing perspectives in groups, which leads to higher decision quality (e.g., De Dreu et al., 2008). In this line of research, it is emphasised that spending time on the consideration of alternatives is needed for high-quality decisions. As supervisory bodies often seem to delay intervention while spending much time discussing alternative strategies, decisiveness should be examined as a key aspect of their decision-making, in its own right, next to reflectiveness.

At the individual level, one might expect that reflectiveness and decisiveness are at odds with each other; taking time to consider alternative views might hinder decisiveness, while quick decision-making may undermine reflectiveness. At the group or team level, however, reflectiveness and decisiveness possibly go together. Specifically, team members can engage in different tasks and guard different aims (e.g., Rink & Ellemers, 2010); some individuals might guard that they take into account different views, while others can monitor that they are progressing towards decision closure. In turn, supervisory teams may critically test their assumptions while taking steps to reach decisions quickly. As illustrated in Figure 8, when both reflectiveness and decisiveness are high (e.g., when teams consider alternatives while they keep pace), their decisions can be both informed and timely. In contrast, when reflectiveness and/or decisiveness are low, this can lead to potentially flawed or late decisions or even no decision at all. When reflectiveness and decisiveness are positively interrelated decision-making behaviours, supervisory bodies can act more decisively without giving in to reflectiveness. Therefore, we explore whether reflectiveness is likely to impede or support decisiveness by investigating how these decision-making behaviours are interrelated.

Figure 8. A reflectiveness-decisiveness model of joint decision-making



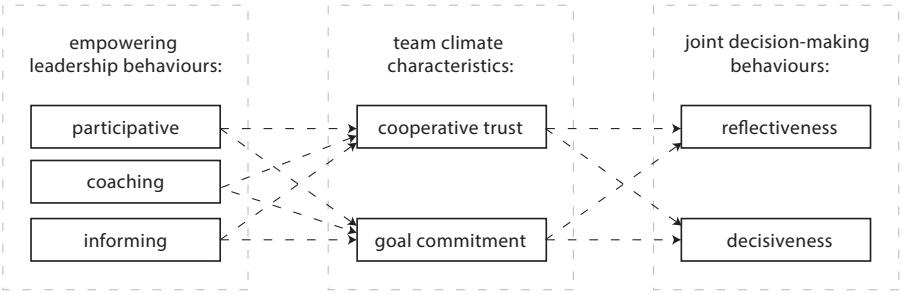
How can team leaders stimulate reflectiveness and decisiveness?

As supervisory teams make most day-to-day decisions on ongoing investigations and possible interventions, we address the decision-making of supervisory teams and the role of team leaders in this process. Specifically, we examine how particular leadership behaviours are related to both reflectiveness and decisiveness. Thus, we focus on leadership behaviours that potentially support supervisory teams in making decisions, rather than management activities such as budgeting and hiring (Kniffin et al., 2020). Building on previous research (Gao et al., 2011), we focus on three types of leadership behaviours that are potentially relevant for reflectiveness and decisiveness: participative, coaching, and informing leadership behaviours. Together, these indicate an 'empowering leadership' approach (Arnold et al., 2000). *Participative leaders* encourage team members to express their ideas, consider their ideas whether or not they disagree with them, and use their suggestions to reach a decision. *Coaching leaders* stimulate team members to focus on shared goals, solve problems together, and develop good relations with each other. *Informing leaders* explain management decisions, the purpose of company policies, and the rules and expectations that apply to the team. Informing leadership behaviours have been found to increase the pace of decision-making, which should benefit decisiveness (Li et al., 2018). However, the same behaviours can undermine reflectiveness by reducing information sharing and the quality of decisions (Cruz et al., 1999). This is why empowering leadership is also characterised by participative and coaching leadership behaviours, which are known to enhance voice behaviour (Wang et al., 2017), knowledge sharing (Srivastava et al., 2006), and decision quality (Meyer et al., 2016).

In the social and organisational psychology literature, a team's social climate—that is, the set of norms, attitudes, and expectations that are perceived by team members (Schneider, 1990)—is seen as a key mediator through which leadership impacts team behaviour (e.g., Edmondson et al., 2004). Prior research has shown that empowering leadership relates to higher trust (Zhang & Zhou, 2014) and commitment (Clark et al., 2009), which we here address as relevant team climate characteristics for reflectiveness and decisiveness. *Cooperative trust* is relevant for reflectiveness, as it implies that team members openly deal with issues or problems and are open to advice from others and may subsequently consider more alternative views during decision-making (Costa et al., 2001). *Goal commitment* speaks to decisiveness as it indicates team members' commitment to and felt responsibility for the team goals, possibly increasing their focus on reaching these goals in a timely fashion (Hoegl et al., 2004). In summary, we anticipate that empowering leadership relates to more reflectiveness as well

as more decisiveness by building a team climate of cooperative trust and goal commitment. This is in line with a review of prior studies showing that teams are most effective when members feel safe to speak up and feel responsible for the team outcomes (Edmondson, 2018). Therefore, we explore how the participative, coaching, and informing behaviours that characterise empowering leadership are related to the reflectiveness and decisiveness of supervisory teams (see Figure 9). Rather than focusing on one type of leadership behaviour, which is seen as an important limitation in the literature on leadership to date (Glynn & Raffaelli, 2010), we compare and test the effects of three types of leadership behaviours on joint decision-making.

Figure 9. Research model



How did the COVID-19 crisis impact reflectiveness and decisiveness?

By disrupting habits and common patterns of team functioning, crises may make it more difficult for teams to continue to act reflectively and decisively. This was evident in the COVID-19 crisis when people were suddenly forced to start working from home and to work apart from their co-workers (Kniffin et al., 2021; Van Bavel et al., 2020). It is possible that this led team members to experience fewer opportunities to share perspectives and guidelines, thereby reducing critical reflection and their effectiveness in joint decision-making.

The ability of supervisory teams to remain reflective and decisive during COVID-19 may have depended on the extent to which team leaders had successfully built a team climate of cooperative trust and goal commitment prior to the onset of this crisis. When teams suddenly have to operate more autonomously and independently from their team leader, empowering leadership may represent an effective strategy to enable satisfactory decision-making when being disrupted by a crisis, as this approach builds the trust and commitment team members need to work together effectively when the team leader is absent (Kniffin et

al., 2021; Van Bavel et al., 2020). In the current research, we examine how initial levels of empowering leadership, cooperative trust, and goal commitment before the COVID-19 crisis (at Time 1) influenced the reflectiveness and decisiveness of supervisory teams during this crisis (at Time 2). This sheds more light on the extent to which investing in the team's ability to reconcile reflectiveness and decisiveness serves as a resource in times of crisis.

The following sections discuss three empirical studies conducted among various supervisory bodies in the Netherlands. We investigate whether supervisory bodies can act both reflectively and decisively (Study 1), whether empowering leaders can simultaneously stimulate reflectiveness and decisiveness (Study 2), and how the onset of the COVID-19 crisis impacted the reflectiveness and decisiveness of supervisory teams (Study 3). We develop and test a new 10-item Joint Decision-Making Questionnaire that measures reflectiveness and decisiveness as joint decision-making behaviours, which offers a practical tool for supervisory bodies to assess the extent to which they reach decisions in both a reflective and decisive manner. Furthermore, we provide greater insight into specific actions that team leaders can take to support their team to make decisions reflectively and decisively on a more daily basis. This also helps their team to effectively deal with challenging circumstances such as the COVID-19 crisis that forced supervisory officers to work apart from their co-workers and collaborate virtually.

Study 1: Reflectiveness and decisiveness

In Study 1a and Study 1b, we conceptualised and tested reflectiveness and decisiveness as two distinct decision-making behaviours. We collected data through online questionnaires among two samples of external and internal supervisors and took several steps to develop appropriate scales to measure reflectiveness and decisiveness. To the best of our knowledge, there are no existing scales available that measure reflectiveness and decisiveness as joint decision-making behaviours. We used the *Learning Styles Questionnaire* by Honey and Mumford (2000) as an inspiration, which distinguishes reflection-oriented from more action-oriented learning styles. For example, one item relevant to decision-making that indicated a reflection-oriented style was 'I like to reach a decision carefully after weighing up many alternatives', and another that indicated an action-oriented learning style was 'In discussions, I like to get straight to the point'. This questionnaire was designed to help individuals identify their preferred learning style. However, we focus on *joint decision-making behaviours* rather than individual preferences, so we used these example items as inspiration and developed additional items to operationalise reflectiveness and decisiveness.

To develop additional items, we conducted in-depth interviews with subject-matter experts (N = 8) who studied supervisory practice as researchers or practitioners working at various supervisory authorities in the Netherlands. During these interviews, we asked exploratory questions regarding the way supervisory bodies reach their decisions. All eight experts spontaneously mentioned the need to reflect and/or the need to take decisive action. For example, a behavioural science expert emphasised the importance of reflectiveness for the quality of regulatory decisions. A regulatory expert referred to the difficulty of acting decisively and making impactful decisions based on limited information. This supports the notion that reflectiveness and decisiveness are two essential decision-making behaviours for supervisory practice. Based on these subject-matter expert interviews, we developed scale items to assess reflectiveness and decisiveness as two distinct decision-making behaviours. We discussed these items with a supervisory research team that was expert in the subject matter as well as experienced in developing questionnaires to be used in the field, resulting in some final adjustments.

In Study 1a, we surveyed a sample of external supervisors (e.g., market supervisors, inspectors) and performed exploratory factor analyses to examine properties of the two scales. In Study 1b, we surveyed a sample of internal supervisors (i.e., supervisory board members) and performed confirmatory factor analyses to test whether the questionnaire items represented two distinct scales. In both studies, we also investigated how the scales indicating reflectiveness and decisiveness were interrelated.

Study 1a

Method

Procedure and participants

The Joint Decision-Making Questionnaire measuring reflectiveness and decisiveness was distributed among a highly diverse sample of supervisory officers working at various supervisory authorities (e.g., healthcare inspectorate, financial market authority) in the Netherlands. The link to the questionnaire was sent via email to all 152 participants of their professional association's annual conference. In this email, we informed participants that participation was voluntary and anonymous and that data would be handled confidentially, which was the case for all the studies reported in this article. No incentives were provided to participants in any of the studies. The questionnaire was part of a larger survey on regulatory

decision-making that was used as input for an interactive presentation by the researchers during the conference. Other measures that were part of this survey were beyond the scope of this article. A total of 87 questionnaires were completed (response rate = 57%). Descriptive statistics and correlations can be found in Table F1. There were no significant correlations between the background variables and reflectiveness and decisiveness.

Measures

The 10-item Joint Decision-Making Questionnaire measured *reflectiveness* (5 items, e.g., 'In our organisation, we examine our assumptions') and *decisiveness* (5 items, e.g., 'In our organisation, we act decisively') as joint decision-making behaviours (see Table 10 for all items). The items were introduced as follows: 'Decision-making is central to the work of supervisory officers and can impact the supervisory body's effectiveness. This concerns, for instance, decisions about identifying, assessing, or mitigating risks. Below statements refer to the decision-making in your organisation'. To capture perceptions of joint decision-making and guard against self-favouring bias, participants were asked to reflect on their organisation—or 'board' in Study 1b, and 'team' in Studies 2 and 3—rather than their own behaviour. As such, the items started with the phrase 'In my organisation…'. All responses were measured on a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree and were collected in the Dutch language. This was the case for all three studies described in this article.

Results

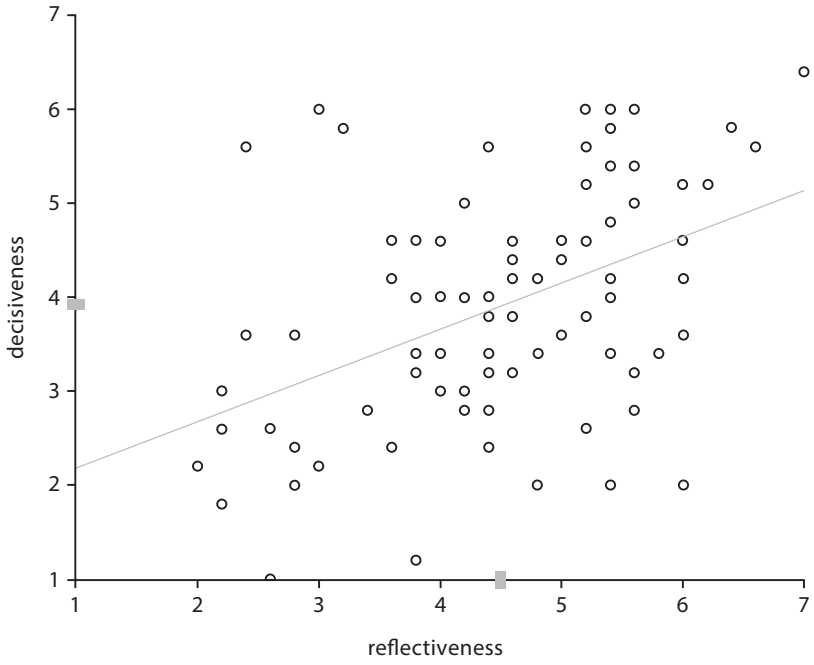
To examine whether the 10 items of the questionnaire represented two distinct clusters of joint decision-making behaviours (i.e., reflectiveness and decisiveness), an exploratory factor analysis (PCA, varimax rotation) was performed. The data were suitable for this analysis because the result of the Kaiser-Meyer-Olkin test was higher than .80 (*KMO* = .87). As intended, the analysis revealed two orthogonal components with eigenvalues larger than 1, explaining 71.8% of the total variance. The Rotated Component Matrix confirmed that the items loaded strongly on one of two components with low or no cross-loadings (see Table 10). This procedure yielded two highly reliable five-item scales capturing reflectiveness (α = .88) and decisiveness (α = .91). These items and scales were used in further analyses.

Table 10. Rotated Component Matrix showing factor loadings

Q	In my organisation…	1 Decisiveness	2 Reflectiveness
3	…we maintain momentum in our approach.	.86	
2	…we act decisively.	.84	
5	…we address complex decisions.	.84	
1	…we quickly reach a decision.	.84	
4	…we come to the point immediately.	.77	
8	…we take time to listen to differing views.		.88
9	…we bring in alternative views.		.87
7	…we examine our assumptions.		.77
6	…we are critical of our actions.		.76
10	…we actively ask for alternative views.		.75

Note. Factor loadings < .40 are suppressed.

Figure 10. Scatterplot showing the relationship between reflectiveness and decisiveness



On average, participants reported higher scores on reflectiveness (M = 4.53, SD = 1.15) than on decisiveness (M = 3.92, SD = 1.26), $t(86) = 4.44$, $p < .001$. Furthermore, reflectiveness and decisiveness were positively correlated with each other ($r(87) = .44$, $p < .001$). As shown in Figure 10, this positive correlation indicates that higher scores on reflectiveness go hand in hand with higher scores on decisiveness.

Study 1b

Method

Procedure and participants

The Joint Decision-Making Questionnaire measuring reflectiveness and decisiveness was distributed among approximately 1300 members of various supervisory boards in the Netherlands. Participants received the link to the questionnaire via an email from their professional association. This questionnaire was part of a larger survey that was used as input for an interactive presentation by the researchers. A total of 158 questionnaires were completed (response rate = 12%). As only 48 participants attended our interactive presentation, we consider this response rate quite high. Descriptive statistics and correlations can be found in Table F2. There were two significant but weak correlations between the background variables and decisiveness; male board members and board members who worked more hours reported higher scores on decisiveness.

Measures

In Study 1b, we used the same 10-item questionnaire to measure reflectiveness and decisiveness as in Study 1a. The only difference in the introduction of the items was that 'the statements below are about the decision-making *in your supervisory board*'. As such, the items were introduced with the phrase 'In my supervisory board…'.

Results

To examine whether the two decision-making behaviours (i.e., reflectiveness and decisiveness) can be statistically distinguished, confirmatory factor analyses were performed. As shown in Table 11, the proposed two-factor model for the questionnaire items demonstrated a highly satisfactory fit, whereas the alternative one-factor model indicated a poor fit. A chi-square difference test between the

proposed two-factor model (M1) and the alternative model (M2) showed that the proposed model fit the data significantly better than the alternative model ($X^2(1, N = 158) = 213.52$, $p < .001$). These results confirm that reflectiveness and decisiveness refer to distinct decision-making behaviours. The final two-factor model showing standardised factor loadings is shown in Figure G1. The two scales measuring reflectiveness ($\alpha = .86$) and decisiveness ($\alpha = .82$) were again highly reliable.

Table 11. Fit indices for proposed and alternative model

Model	X^2	*df*	*p* <	*TLI*	*CFI*	*RMSEA*
M1: Proposed 2-factor model	55.46	157	.05	.96	.97	.06
M2: Alternative 1-factor model	268.98	157	.001	.54	.64	.21

Note. TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation.

Similar to Study 1a, participants indicated slightly higher scores on reflectiveness ($M = 5.56$, $SD = .82$) than on decisiveness ($M = 5.24$, $SD = .81$), $t(157) = 4.22$, $p < .001$. A correlational analysis again demonstrated that reflectiveness and decisiveness were positively correlated with each other ($r(156) = .27$, $p = .001$; see Figure H1).

Conclusion Study 1

In both samples we examined, reflectiveness was rated higher than decisiveness. In other words, supervisory officers perceived members of their supervisory body to be better at discussing alternative views than at maintaining momentum in their approach. This is consistent with prior observations of how supervisory bodies tend to operate (e.g., spending considerable time on analysing risks and discussing alternatives; Ottow, 2015a).

Our findings also show that reflectiveness and decisiveness are positively interrelated decision-making behaviours. This suggests that reflectiveness and decisiveness are not at odds with each other but can be reconciled in joint decision-making. Thus, reflectiveness does not seem to impede decisiveness but is more likely to support decisiveness.

Study 2: The role of empowering leadership

In Study 2, we examined supervisory teams to gain more insight into the question of how empowering leadership is related to reflectiveness and decisiveness. The choice of predictors in this study was partly based on 17 in-depth interviews with supervisory officers ($N = 6$), team managers ($N = 6$), and department heads

(N = 5) from the supervisory authority we examined. Almost all interviewees emphasised the importance of team leaders who provide room for challenge and a clear direction to act both reflectively and decisively. For example, a department head referred to trust and clarity as fundamentals of an effective team within the organisation and the critical role of team leaders in creating the conditions that foster this. Also, a supervisory officer alluded to positive experiences with a leader who provides direction and, at the same time, shows trust by responding constructively and avoiding micromanagement. As elaborated in the introduction, we included *empowering leadership*, *cooperative trust,* and *goal commitment* as potential predictors of reflectiveness and decisiveness (Arnold et al., 2000; Costa et al., 2001; Hoegl et al., 2004). We used path analysis to test how empowering leadership predicts cooperative trust and goal commitment and, in turn, the reflectiveness and decisiveness of supervisory teams.

Method

Procedure and participants

An online questionnaire was distributed to 470 supervisory officers working at a supervisory authority in the Netherlands, via an email from its managing board. A total of 271 questionnaires were completed (response rate = 58%). Participants worked in different supervisory teams throughout the organisation. In total, there were 44 teams in our dataset. Similar to prior research (e.g., Maloney et al., 2010), we used the criterion of at least two participants per team to include the team in the analysis. As all teams had met this criterion, all 44 teams were used in further analyses. The response rates within teams ranged from 25 to 100%. On average, there were six participants per team, and the team sizes ranged from two to 11.

Furthermore, participants were asked whether they worked in their team for less than one year, which was the case for 28% of the participants. These participants were evenly distributed among the teams ($X^2(43, N = 271) = 46.69$, $p = .323$). As this variable (i.e., working in this team for less than one year) was not significantly correlated with any of the dependent variables (see Table F3), we did not control for this in further analyses. No further background information was asked because we did not want to raise concerns about anonymity as this study was conducted within a single organisation. Team size ($M = 12.44$, $SD = 6.49$) was not significantly correlated with any of the dependent variables (see Table F3) and was therefore not controlled for in further analyses.

Measures

In the online questionnaire, participants were asked to reflect on their team. Based on calculations of interrater agreement coefficients and intra-class correlations (see Table I1), the data were aggregated at the team level, and mean scores were computed.

Empowering leadership was assessed with the Empowering Leadership Questionnaire developed by Arnold et al. (2000). The original scales for participative leadership and informing leadership consisted of six items, whereas the original scale for coaching leadership consisted of 11 items. The latter was reduced by focusing on the six most relevant items so that three six-item scales were obtained (Gao et al., 2011). Example items include 'My manager encourages team members to express ideas/suggestions' (participative; α = .91), 'My manager helps team members to focus on their goals' (coaching; α = .92), and 'My manager can properly explain the role of my team within the organisation' (informing; α = .93).

Cooperative trust was measured with the three most relevant items from the six-item scale developed by Costa et al. (2001): 'In my team, we discuss and deal with issues or problems openly'; 'We take each other's opinions into consideration'; 'Most team members are open to advice and help from others' (α = .84).

Goal commitment was measured with the three most relevant items from the five-item scale developed by Hoegl et al. (2004). Because these items were originally intended to measure 'project commitment', we slightly adjusted the items to focus on team members' commitment to the team and its goals. This led to the following items: 'My team feels responsible for achieving our goals'; 'Team members have committed themselves to our goals'; 'Team members are proud to be part of this team' (α = .82).

Joint decision-making behaviours were assessed with the 10-item Joint Decision-Making Questionnaire that was developed in Study 1. The five-item Reflectiveness-scale (α = .86) and the five-item Decisiveness-scale (α = .90) again showed good reliability. The items were introduced as follows: 'Below statements are about the decision-making *in your team*. This decision-making can be formal (e.g., on formal measures) as well as informal (e.g., on informal agreements)'. As such, the items started with the phrase 'In my team…'.

Results

Similar to Study 1, participants indicated higher scores on reflectiveness ($M = 5.12$, $SD = .60$) than on decisiveness ($M = 4.63$, $SD = .65$), $t(43) = 5.78$, $p < .001$. As shown in Table 12, reflectiveness and decisiveness were again positively correlated with each other (see Figure H2). The other study variables also showed moderate to strong positive correlations (e.g., teams that experienced more cooperative trust were also more committed to the team goals). Confirmatory factor analyses revealed that the study variables refer to distinct constructs and can, therefore, be analysed as such (see Table J1).

Table 12. Means, standard deviations, and correlations for study variables ($N_{teams} = 44$)

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. Participative leadership	5.53	.60	-						
2. Coaching leadership	5.33	.75	.82**	-					
3. Informing leadership	5.17	.67	.73**	.71**	-				
4. Cooperative trust	5.33	.58	.65**	.57**	.53**	-			
5. Goal commitment	5.43	.72	.51**	.46**	.34*	.66**	-		
6. Reflectiveness	5.12	.60	.54**	.54**	.39**	.73**	.52**	-	
7. Decisiveness	4.63	.65	.56**	.50**	.42**	.66**	.72**	.59**	-

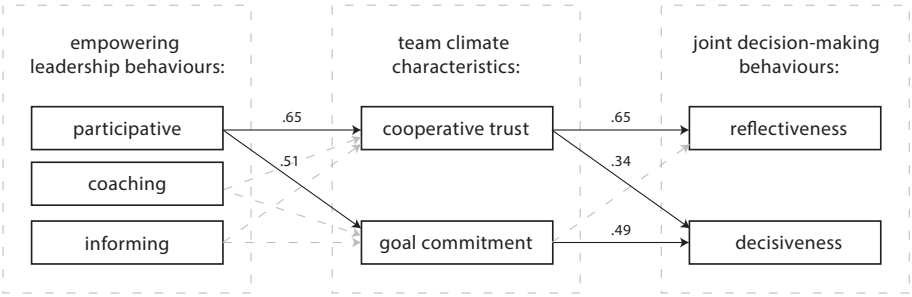
Note. * $p < .05$, ** $p < .01$.

To test whether the empowering leadership behaviours (i.e., participative, coaching, and informing behaviour) were related to reflectiveness and decisiveness, via cooperative trust and goal commitment, we performed path analysis. Figure 11 illustrates the significant paths of the final model ($X^2(43, N = 44) = 5.94$, $p = .877$, $TLI = 1.00$, $CFI = 1.00$, $RMSEA = .00$). This model shows that participative leadership was related to higher cooperative trust and goal commitment. In turn, cooperative trust was related to more reflectiveness, and goal commitment was related to more decisiveness. In addition, cooperative trust was related to more decisiveness, although this relationship was less strong.

Analyses showed that participative leadership had a positive indirect relationship with reflectiveness via cooperative trust ($b_{indirect} = .43$, $p = .002$); participative leadership did not significantly relate to reflectiveness when cooperative trust was included ($b = .11$, $p = .421$). Participative leadership also had a positive indirect relationship with decisiveness via goal commitment ($b_{indirect} = .29$, $p = .006$); participative leadership was not significantly related to decisiveness

when goal commitment was included (b = .17, p = .196). The indirect relationship between participative leadership and decisiveness via cooperative trust was only marginally significant ($b_{indirect}$ = .16, p = .057). Thus, participative leadership positively relates to cooperative trust and goal commitment and, in turn, to reflectiveness and decisiveness. We did not find these relationships for coaching leadership and informing leadership.

Figure 11. Path model showing standardised betas of the significant paths ($p < .05$)



Note. The dotted non-significant paths all had standardised betas of .15 or lower.

Conclusion Study 2

Compared to coaching and informing leadership, participative leadership was related most clearly to both the reflectiveness and decisiveness of supervisory teams. As anticipated, cooperative trust and goal commitment were important mediators. Cooperative trust was related to more reflectiveness, whereas goal commitment was related to more decisiveness. These findings suggest that participative leaders can increase reflectiveness by promoting cooperative trust and can enhance decisiveness by creating goal commitment.

Why is participative leadership a more important predictor of cooperative trust and goal commitment than coaching and informing leadership? One difference between these forms of leadership is that participative leaders involve team members in the decision-making that affects the team. In contrast, coaching and informing leadership represent more individual approaches that focus on providing support (e.g., helping team members to focus on their goals) and providing clarity (e.g., giving team members clear direction and guidelines), and focus less on the team as a whole. Therefore, these may affect team members' feelings of cooperative trust and their commitment to the team goals to a lesser extent.

Study 3: The impact of the COVID-19 crisis

In Study 3, a second round of data collection was conducted to test how the onset of the COVID-19 crisis impacted the reflectiveness and decisiveness of supervisory teams. The first wave (Time 1), which was reported in Study 2, was conducted in February 2020, just before the outbreak of the COVID-19 pandemic in the Netherlands. Once the pandemic hit, this significantly disrupted the nature of work such that office workers were no longer allowed to travel to and work at the office, to have face-to-face meetings, and to bring children to day-care or school. This study sought to examine how the onset of the COVID-19 crisis affected the reflectiveness and decisiveness of supervisory teams in April 2020 (at Time 2), and whether this was influenced by initial levels of empowering leadership, cooperative trust, and goal commitment before this crisis (at Time 1). Thus, we performed a 'natural experiment' which means that the experimental manipulation is determined by factors outside the control of the researchers, in this case, the onset of the COVID-19 crisis.

Method

Procedure and participants

A brief questionnaire was distributed in the same manner two months after the first round of data collection and among the same teams as in Study 2. In total, 215 questionnaires were completed (response rate = 45%). This resulted in 42 teams we could use in further analyses, according to the criterion of having at least two participants per team. The response rates within teams ranged from 25 to 83%. On average, there were 5 participants per team, and the team sizes ranged from two to 11.

As this second round of data collection during COVID-19 was initially not planned, we did not have the kind of individual-level data that is necessary to check whether the same team members participated in both waves. We were still able to compare mean scores at the team level between both waves, but there was possibly some variation in the team members who participated in the second wave compared to the first. To account for dependency in responses between the first and second waves, we examined the interrater agreement within teams at Time 1 and Time 2, and conducted a paired sample comparison. For teams' reports of *reflectiveness* (i.e., two-item measure, see Measures below), the average interrater agreement coefficient ($r_{WG(J),uniform}$) was .80 at Time 1 and .77 at Time 2, showing high agreement within the teams at both points in time ($t(41) = .74$, $p = .462$).

For teams' reports of *decisiveness* (i.e., two-item measure, see Measures below), the average interrater agreement coefficient ($r_{WG(J),uniform}$) was .71 at Time 1 and .76 at Time 2, again showing high agreement within the teams at both points in time ($t(41) = -.89$, $p = .379$). These results indicate that team members agreed with each other on the extent to which their team reaches decisions reflectively and decisively, which was the case in both waves. We found no significant differences between the interrater agreement at Time 1 and Time 2, which means that team members agreed just as much with one another when they were working at the office (Time 1) as when they were working from home due to COVID-19 (Time 2).

Furthermore, of all 213 participants, 97% were working from home completely at the time of data collection at Time 2, while they had all been working at the office at Time 1. Thus, the teams were similar to this important characteristic of the COVID-19 crisis. Working from home was not significantly correlated with reflectiveness or decisiveness at Time 2 (see Table F4), so we did not control for this in further analyses.

Measures

The study variables (i.e., cooperative trust, goal commitment, reflectiveness, and decisiveness) were measured with the two highest-loading items of the scales used in Study 2, according to confirmatory factor analyses. The data of each measure were again aggregated at the team level, based on calculations of interrater agreement coefficients and intra-class correlations (see Table I1). Mean scores of the two highest-loading items were computed for the teams in both waves (i.e., just before and during the COVID-19 crisis).

Cooperative trust was measured with the following two items: 'In my team, we discuss and deal with issues or problems openly'; 'We take each other's opinions into consideration' ($\alpha = .84$). *Goal commitment* was measured with the following two items: 'My team feels responsible for achieving our goals'; 'Team members have committed themselves to our goals' ($\alpha = .91$). *Joint decision-making behaviours* were assessed with the two highest-loading items of the reflectiveness-scale ('In my team …we take time to listen to differing views'; '…we bring in alternative views'; $\alpha = .87$) and the two highest-loading items of the decisiveness-scale ('In my team …we maintain momentum in our approach'; '…we act decisively'; $\alpha = .88$). To specify that we wanted participants to respond to the current situation during COVID-19, these items were introduced as follows: 'Assess the following statements reflecting on your situation or experience at this moment during the COVID-19 crisis'.

Results

To test whether the onset of the COVID-19 crisis influenced the reflectiveness and decisiveness of supervisory teams, paired-samples *t*-tests were performed. These tests showed that decisiveness significantly increased (M_{time1} = 4.70 vs M_{time2} = 5.13; $t(41) = -3.16$, $p = .003$) and that reflectiveness significantly decreased (M_{time1} = 5.34 vs M_{time2} = 4.93; $t(41) = 3.03$, $p = .004$). During the COVID-19 crisis (at Time 2), teams on average reported higher scores on decisiveness than on reflectiveness ($t(41) = -.22$, $p = .037$). Furthermore, we found that the positive correlation between reflectiveness and decisiveness became stronger ($r_{time1}(42) = .45$ vs $r_{time2}(42) = .67$). Cooperative trust and goal commitment did not significantly increase during the COVID-19 crisis (i.e., cooperative trust: M_{time1} = 5.13 vs M_{time2} = 5.32, $t(41) = -1.72$, $p = .092$; goal commitment: M_{time1} = 5.32 vs M_{time2} = 5.59, $t(41) = -1.96$, $p = .057$) and were, therefore, not examined over time in further analyses.

To examine whether the effect of the COVID-19 crisis on decisiveness and reflectiveness (at Time 2) was positively impacted by initial levels of empowering leadership behaviours, cooperative trust, and goal commitment (at Time 1), a repeated measures ANCOVA was performed. Mean scores of empowering leadership behaviours, cooperative trust, and goal commitment from the first wave (Study 2) were used as covariates in these analyses. There was a significant positive interaction effect between time (crisis) and goal commitment on decisiveness ($F(1,36) = 5.01$, $p = .031$, $\eta^2 = .12$). This indicates that teams that were more committed to their team goals before the COVID-19 crisis scored somewhat higher on decisiveness during this crisis than teams that initially experienced less goal commitment. Moreover, there was a significant positive interaction effect between time (crisis) and cooperative trust on reflectiveness ($F(1,36) = 4.66$, $p = .038$, $\eta^2 = .12$). This implies that teams that experienced more cooperative trust before the COVID-19 crisis, scored somewhat higher on reflectiveness during this crisis than teams that experienced less cooperative trust. None of the three empowering leadership behaviours assessed at Time 1 significantly interacted with time (crisis) on reflectiveness or decisiveness (at Time 2); all effect sizes (η^2) were lower than .05. Thus, changes in reflectiveness and decisiveness during COVID-19 were more dependent on the initial levels of cooperative trust and goal commitment in teams than on the leadership behaviours that had induced this team climate.

Conclusion Study 3

During the COVID-19 crisis, supervisory teams reported less reflectiveness and more decisiveness than prior to the onset of this crisis. It is possible that team members were less motivated or experienced fewer opportunities to share information and perspectives with one another once they were forced to work apart. Likewise, this crisis may have enhanced team members' sense of urgency, prompting them to work towards decision closure.

As anticipated, supervisory teams that reported higher levels of cooperative trust and goal commitment prior to the COVID-19 crisis reported more reflectiveness as well as more decisiveness during this crisis. In other words, teams that already experienced more cooperative trust and goal commitment were better able to reconcile reflectiveness and decisiveness during the COVID-19 crisis. The increased correlation between reflectiveness and decisiveness indicates that teams were doing this even better in times of crisis. This suggests that by fostering cooperative trust and goal commitment, team leaders can prepare their team to make decisions reflectively and decisively when being disrupted by a crisis.

Discussion

In this research, we focused on the decision-making taking place within supervisory bodies that aim to prevent harm to society by mitigating risks occurring in the institutions and markets that they supervise. On the one hand, supervisory bodies have to make sure that information is optimally exchanged so that they can base their judgements on all available information. To do this, they need to show reflective behaviour, such as examining their assumptions and asking for alternative views. On the other hand, supervisory bodies should intervene in a timely way to mitigate risks before social damage is done with sufficient but not necessarily complete knowledge of all the facts. Therefore, they need to maintain momentum in their approach and act decisively. This research examined the extent to which supervisory bodies make decisions in ways that are reflective as well as decisive. Specifically, we examined the experiences of supervisory teams as the source of decision-making rather than examining regulatory decision-making after the occurrence of an incident.

In the current research, we showed that supervisory teams should be able to act reflectively and decisively in decision-making, that participative leaders can stimulate both decision-making behaviours by promoting a team climate

of cooperative trust and goal commitment, and that experiencing this type of climate supported teams to act reflectively and decisively when being disrupted by the COVID-19 crisis. First, results showed that reflectiveness and decisiveness are positively interrelated decision-making behaviours. This indicates that reflectiveness and decisiveness can go hand in hand at the team level (e.g., Rink & Ellemers, 2010), and are not incompatible with each other. This finding suggests that supervisory teams can take time to consider alternative strategies, as long as they keep in mind the moment at which they should intervene. Therefore, in joint decision-making, some individuals might guard that the team takes into account different views, while others are monitoring that they progress towards decision closure.

Second, this research showed that team leaders can support supervisory teams to make decisions more reflectively and decisively. In line with previous research (Clark et al., 2009; Gao et al., 2011; Srivastava et al., 2006; Zhang & Zhou, 2014), participative leadership relates to a team climate of cooperative trust and goal commitment and, subsequently, to more reflectiveness and decisiveness. Participative leaders involve team members in the decision-making and explicitly ask for alternative views (Arnold et al., 2000). Consequently, team members trust each other more with their opinions and feel more committed to the team goals (Costa et al., 2001; Hoegl et al., 2004). Experiencing cooperative trust, in turn, relates to more reflectiveness, and goal commitment relates to more decisiveness. By demonstrating participative leadership behaviours, team leaders can foster a team climate of cooperative trust and goal commitment to increase reflectiveness and decisiveness.

Third, we found that teams that experienced more cooperative trust and goal commitment prior to the COVID-19 crisis reported more reflectiveness and decisiveness during this crisis. As people were suddenly forced to work from home, they had to reach decisions more autonomously and at a physical distance from their team leader and co-workers (Van Bavel et al., 2020). It appears that teams that experienced more openness to sharing their thoughts and felt more responsible for the team outcomes were better equipped to consider various perspectives and to make decisions quickly during COVID-19. In contrast, for teams that experienced less cooperative trust or goal commitment prior to the COVID-19 crisis, online collaboration might have made it even more difficult to raise alternative views or to proceed towards a joint decision. This finding provides another argument for team leaders to build a team climate based on cooperative trust and goal commitment in order to enable team members to make decisions reflectively and decisively when the circumstances require it.

Limitations and future research

Although a strong point of our research is that we examined the decision-making of a specific and underexamined professional group, our approach came with several limitations. First, we were dependent on the number of supervisory officers that were approached by their organisation or professional association to participate in our research. As we did not provide incentives to participants in any of the studies, this possibly resulted in relatively small samples and selection bias. Also, as all three studies were performed in the Netherlands, our findings might be specific to the Dutch national context. For example, in countries where directive leadership is valued to a greater extent, participative leadership might be less prevalent and its influence on joint decision-making behaviours might be weaker (e.g., Dorfman et al., 1997). Nonetheless, we are confident that the current findings are likely to apply to a broader set of contexts, as these are in line with prior studies performed in other types of organisations and national cultures (e.g., among employees in the telecommunication or manufacturing industry in China; Gao et al., 2011; Zhang & Zhou, 2014). Future research should test whether the found relationships are indeed applicable to different types of supervisory bodies in various contexts.

Second, we examined reflectiveness and decisiveness by measuring supervisory officers' experiences regarding their leadership, team climate, and joint decision-making. This approach allowed us to investigate predictors of and the interrelationship between reflectiveness and decisiveness reported by supervisory officers. Although the found relationships are in line with findings from prior research, such as that leadership influences team climate (e.g., Edmondson et al., 2004), the cross-sectional design of Study 2 makes it difficult to draw firm conclusions about causality. Future experimental or longitudinal research should further validate the causal direction of the relationships we observed. Specifically, it might be interesting to test how reflectiveness and decisiveness jointly affect the quality of actual regulatory decisions, which was beyond the scope of the current research. Although it is highly difficult to measure objective decision quality in real-life settings, which makes the case for self-report measurement stronger (Amason, 1996), future research could seek objective indicators of decision quality—for instance, the number of successful legal trials.

Third, we were able to perform a natural experiment, as we collected data just before and during the COVID-19 crisis that was characterised by the abrupt shift to working from home. Even though we were only able to compare mean scores at the team level between both waves and not at the individual level, we found

that this crisis strongly impacted the reported reflectiveness and decisiveness of supervisory teams. We cannot exclude the possibility that another event besides the onset of this crisis impacted changes in the decision-making behaviour of supervisory teams that we observed between Time 1 and Time 2. However, as we found substantial differences within a short period (i.e., two months), it is likely that only an anomalous and drastic event, such as this crisis, could have had such a profound effect. Future research should examine which specific characteristics of crises (e.g., new working conditions, self-prioritisation, change in focus; Van Bavel et al., 2020) mostly explain why teams might act more decisively and less reflectively during a crisis.

Fourth, our primary aim was to understand the social context in which supervisory officers reach their decisions, by examining leadership and team climate as predictors of reflectiveness and decisiveness. Thus, we gained new insights into important meso-level factors that contribute to regulatory decision-making. Future research could further scrutinise these factors in combination with macro-level mechanisms that might play a role in the extent to which decisions are made reflectively and decisively. For example, external political or media pressure may influence this, temporarily enhancing the decision-making pace or prompting supervisory bodies to act more carefully in testing their assumptions before reaching a decision (Berry, 2010). Another example is that the reluctance of regulated organisations to share information may hinder supervisory bodies in their attempt to obtain and consider all relevant facts and make informed decisions quickly. Furthermore, it could be illuminating to compare various types of decisions. For example, the severity or impact of the decision to be made (e.g., sanctions vs warnings) might influence the tendency of supervisory bodies to invest in reflectiveness as well as decisiveness.

Practical implications

Rather than considering reflectiveness and decisiveness to be at odds with each other, our data has shown that these behaviours can be reconciled in joint decision-making. Supervisory bodies could use the newly developed Joint Decision-Making Questionnaire as a practical tool to assess whether decisions are reached in a reflective and decisive manner. When one of the two tendencies receives too little attention, insights from the current research can be used to increase reflectiveness and/or decisiveness. We suggest that leaders of supervisory teams or chairs of supervisory boards can positively contribute to reflectiveness by creating cooperative trust and to decisiveness by fostering goal commitment. Below, we elaborate on what actions leaders can take to promote these team climate characteristics.

In general, the findings emphasise the importance for team leaders and chairs of supervisory boards to demonstrate participative leadership behaviours to promote a team climate of cooperative trust and goal commitment. This suggests that before making a strategic decision, it would be beneficial for leaders to discuss possible directions with team members by encouraging them to express their ideas and suggestions and giving them a chance to voice their opinions (Arnold et al., 2000). Importantly, leaders should then use team members' suggestions to make a decision and consider their ideas even when disagreeing with them. When leaders do not involve team members in the decision-making, the risk increases that team members keep their thoughts to themselves and do not feel responsible for the outcomes of the decision-making (Edmondson, 2018). This could harm team effectiveness, but it could also harm the organisation as others might base new judgements on the outcomes of the team decision-making.

Furthermore, at a somewhat higher level, it is important for supervisory bodies to acknowledge that the social climate within supervisory teams is likely to partly reflect the climate of an organisation as a whole. For example, it could be that at all organisational levels one is reluctant to share one's thoughts and perspectives. To gain more insight into the organisational climate, the managing board of a supervisory authority might conduct questionnaires and in-depth interviews to examine how supervisory officers and higher managers experience various aspects of the organisational climate such as cooperative trust (Christensen et al., 2018). Based on the outcomes of this examination, managing board members might benefit from taking a close look at their exemplary behaviour and would do well to display participative leadership behaviours (Van Steenbergen et al., 2019). In this way, both managing board members and team leaders can take a role in contributing to a climate of cooperative trust and goal commitment to improve regulatory decision-making.

Conclusion

Reflectiveness and decisiveness are essential decision-making behaviours for supervisory bodies that make decisions with far-reaching consequences for regulated organisations. Although one might think that reflectiveness undermines decisiveness, the current research has shown that these tendencies are, in fact, positively associated and can be reconciled in joint decision-making. In addition, results have shown that by demonstrating participative leadership behaviours, leaders can foster a social climate of cooperative trust and goal commitment. Consequently, supervisory bodies can act more reflectively and decisively to reach informed and timely decisions and, ultimately, to prevent harm to society.


5

Chapter 5

General discussion: How psychological processes influence the decision-making of supervisory officers

'Supervisor, where were you? How could you have missed this? Why didn't you intervene?' Being confronted with these questions usually means that an incident or scandal has occurred under the watchful eye of supervisory bodies. Politicians and journalists often blame supervisory bodies for their inability to prevent harm to consumers and society, and frequently point to the flawed decision-making and inaction of supervisory bodies. However, merely looking at past conduct and individual cases with the primary aim to assign liability and punishment might not be the optimal approach to learn which processes hinder or stimulate informed and timely decision-making. More systematic insights can be gained from examining psychological processes that structurally impact regulatory decision-making.

Using questionnaire studies and field experiments among diverse samples of supervisory officers, this dissertation examined the extent to which supervisory officers are aware of and affected by biases in decision-making and how they can improve their decision-making to reach informed and timely decisions. As regulatory decision-making primarily takes place within groups, this central research question was examined at both the individual and group level. Furthermore, as governments expect supervisory officers to reach their decisions in an objective manner, various strategies were tested that aim to increase awareness of potential biases and improve decision quality. In this dissertation, I addressed these aims from a social psychological perspective. This means that I was particularly interested in how the thoughts, feelings, and behaviours of supervisory officers are influenced by the social context and the 'system' in which they are embedded on a day-to-day basis. For example, I examined how supervisory officers perceive their team climate and how this supports informed and timely decision-making. Below, I reflect on the main findings of each empirical chapter of this dissertation, and discuss the scientific contributions, the limitations and future research directions, and the practical implications of this dissertation.

Summary of the main findings

The three empirical chapters of the current dissertation each focused on different psychological processes that potentially impact the decision-making of supervisory officers, namely the role of individual beliefs (Chapter 2), group dynamics (Chapter 3), and team climate and leadership (Chapter 4). Below, I first summarise the findings of each empirical chapter. Next, I identify overarching themes that shed more light on human flaws in regulatory decision-making and on what helps or does not help to improve the decision-making of supervisory officers.

Chapter 2 showed that supervisory officers demonstrated a so-called bias blind spot; they believed that they are less biased than others. Prior research has shown that having a bias blind spot may adversely impact the quality of decision-making, as it causes professionals to overestimate their own capabilities and ignore advice from others (Scopelliti et al., 2015). This chapter further showed that supervisory officers who considered themselves to be rational and objective decision-makers demonstrated a larger bias blind spot. By comparison, supervisory officers who were more vigilant (i.e., concerned about bias in decision-making) considered themselves to be less objective and demonstrated a smaller bias blind spot. These findings suggest that increasing *vigilance* may be a key ingredient of interventions that aim to raise awareness among supervisory officers. Unfortunately, this chapter also showed that simply informing supervisory officers about the risks of biases neither increased vigilance nor decreased self-perceived objectivity or the bias blind spot. A reassuring message—one in which supervisory officers were told that they could rely on their experience—even further reduced levels of vigilance. A broader implication of these findings is that policymakers can better avoid stating that supervisory officers perform their tasks objectively, for instance, in government policies (e.g., BZK, 2001) or value statements (e.g., ACM, n.d.). Rather than expecting supervisory officers to reach decisions in an objective manner, policymakers would do well to consider that supervisory officers are likely to be influenced by biases in decision-making. Because supervisory officers may not recognise their own biases, they need others to challenge their assumptions as a way to become more vigilant of biases in decision-making.

Chapter 3 showed that making decisions in groups is not sufficient in itself to reach unbiased and high-quality decisions. In a hidden-profile task among groups of supervisory and managing board members, information was asymmetrically distributed among group members. Results revealed that only a fifth of the groups reached the objectively best decision. This implies that most groups did not succeed in sharing and combining the information that each member individually possessed. Instead, it appeared that most of the groups were influenced by the 'initial majority preference'. Groups stayed with the initial preference that was held by most group members prior to discussion, which was not necessarily the best option. Nevertheless, supervisory and managing board members were highly satisfied with their decision-making and were quite confident that they had reached the optimal decision. This suggests that groups of experienced decision-makers are affected by *confirmation bias* and can become overconfident about their decisions, which is in line with prior research among students (Schulz-Hardt et al., 2002). This chapter also showed that neither of two popular discussion procedures

(i.e., advocacy decision procedure or decisional balance sheet) improved decision quality, and neither did the time spent on the discussion. Rather alarmingly, the use of a tool even increased the likelihood that supervisory and managing board members positively evaluated their decision-making process. Decision-makers should, therefore, be careful when relying on unproven tools as their use may foster a false sense of security. The use of a practical tool can cause supervisory officers to believe that the procedure supports the decision-making when this is, in fact, not the case. As a consequence, the use of a tool possibly undermines the quality of decision-making rather than helping supervisory officers reach better-informed and high-quality decisions.

Chapter 4 further showed that making decisions in a reflective manner to reduce bias and reach informed decisions can go hand in hand with acting decisively to take timely action and prevent social harm. At a team level, it appeared that reflectiveness (e.g., taking time to consider alternative strategies) was positively associated with decisiveness (e.g., taking steps to reach decisions quickly). Contrary to what is often believed, this suggests that reflectiveness is not necessarily at odds with decisiveness but that these decision-making behaviours can be reconciled in joint decision-making. In practice, some team members can show reflective behaviours by making sure that the team takes into account different views, while others can show decisive behaviours by monitoring that they work towards decision closure. In this way, reflectiveness and decisiveness can complement and reinforce each other, enabling supervisory teams to make informed and timely decisions. By considering the importance of deliberation as well as the timeliness of decision-making, this result extends prior research that was primarily focused on increasing reflection (e.g., by fostering motivated information processing; De Dreu et al., 2008). Furthermore, this chapter showed that participative leaders can simultaneously stimulate both reflectiveness and decisiveness by shaping a team climate of cooperative trust and goal commitment. Thus, when leaders actively involve others in the decision-making, they can foster an environment in which team members feel safe to speak up and are committed to the team goals. As a result, supervisory teams are empowered to make decisions in a reflective and decisive manner, even in challenging circumstances. For example, when teams experienced more cooperative trust and goal commitment prior to the COVID-19 crisis, they were better able to make decisions reflectively and decisively during this crisis that had forced team members to work apart from each other and collaborate virtually.

Overarching themes of the current dissertation

Combining the findings from the three empirical chapters, I identified three overarching themes that provide a deeper insight into the central research question of this dissertation: (a) to what extent are supervisory officers aware of biases, (b) in what way are they affected by biases, and (c) how can they improve their decision-making to reach informed and timely decisions? To illustrate the practical relevance of this dissertation's findings, I apply the insights of the current dissertation to the high-profile and widely publicised Madoff case that this dissertation started with. More specifically, I use the insights of the current dissertation to reflect on the following question: 'how can we explain from a psychological perspective that the responsible supervisory body in the Madoff case, the SEC, did not act upon the alarming signals that were brought to their attention?' Answering this question in hindsight is, of course, speculation and might suggest oversimplification of the case. However, in this instance, the case is intended to illustrate how psychological insights can help to explain how human flaws in judgement can adversely impact the decision-making of supervisory officers.

Supervisory officers are 'only human' and are, therefore, affected by cognitive biases, increasing the risk of suboptimal decisions

Even though independence and objectivity are considered important conditions for effective supervision (Ottow, 2015b), the current dissertation showed that supervisory officers may not be as objective as desired but rather are influenced by biases in decision-making. Specifically, this dissertation showed that supervisory officers demonstrated a better-than-average effect regarding their ability to reach unbiased decisions (Chapter 2). This may cause them to reflect less on their assumptions and make suboptimal decisions (Uhlmann & Cohen, 2007). Moreover, this dissertation showed that supervisory officers were affected by *confirmation bias* in joint decision-making, leading to biased decisions (Chapter 3). Furthermore, they did not score particularly high on reflective behaviour that is needed for more objective decision-making (Chapters 3 and 4). Even though it is often believed in practice that group decision-making increases objectivity, it appears that individual-level biases also come to the fore at the group level. Although there are more perspectives available to groups, informational diversity is no guarantee that group members take each other's perspectives into account. As individual members tend to hold on to their initial preference, it appears that making decisions in groups does not automatically lead to better decisions.

Reflection on the Madoff case. The Madoff case suggested that even well-trained and experienced professionals, such as supervisory officers, can reach flawed decisions. This aligns with findings of the current dissertation suggesting that supervisory officers are 'only human' and, therefore, not able to fully process objective information in their decision-making and draw the correct conclusion based on this information (Theme 1). In the Madoff case, SEC's supervisory officers were presented with multiple signals that pointed to the existence of a Ponzi scheme but did not act upon them. According to the Office of Investigations (2009), SEC's supervisory officers were sceptical about the urgency of the matter, which might explain why they postponed any real investigation and intervention until it was too late. It seems that supervisory officers, in this case, stayed with their initial judgement that it was not necessary to take a closer look at and intervene in Madoff's operations based on the provided signals. This suggests confirmation bias, leading to flawed decision-making as the wrong conclusion was drawn from the information presented to them. As a consequence, Madoff was able to continue his substantial fraud for years before he was arrested, causing excessive financial harm to investors and society as a whole.

Supervisory officers are generally unaware of biases and tend to be overconfident, even when making decisions in groups

As governments expect supervisory officers to reach decisions in an objective manner, this may cause supervisory officers to also perceive themselves as objective and rational decision-makers. This idea of being objective could even become part of their professional identity (Ellemers, 2012; Ellemers et al., 1999). The findings of this dissertation demonstrated that supervisory officers indeed believed that they were rational and objective decision-makers and that they were not affected much by biases in decision-making (Chapter 2). This indicates *overconfidence* in one's decision-making capabilities. Moreover, the current dissertation showed that groups of supervisory and managing board members were confident about the quality of their decisions, even though only one-fifth of the groups were successful in pooling all available information and reaching the optimal decision (Chapter 3). Thus, it appears that supervisory officers tend to underestimate their proneness to bias and are overconfident about the quality of their decisions, even when making decisions in groups. These findings imply that it could be dangerous for supervisory officers to identify themselves as objective decision-makers, as they may actually be affected by biases. As noted previously, this also implies that policymakers should avoid communicating unrealistic expectations regarding the decision-making abilities of supervisory officers.

Reflection on the Madoff case. As indicated previously, the Madoff case suggested that supervisory officers within the SEC were holding on to their initial judgement to not take any formal measures while ignoring conflicting evidence. This confirmation bias might have been reinforced by the overconfidence of supervisory officers. Being overconfident about the quality of one's decision-making was in this dissertation identified as an important potential pitfall in the decision-making of supervisory officers (Theme 2). According to the report of the Office of Investigations (2009), SEC's supervisory officers maintained their initial judgement for almost a decade. Therefore, it might have been the case that supervisory officers did not want to face the possibility that they were wrong not to intervene. Over time, more complaints reached the attention of the SEC. Even though many supervisory officers within the SEC had looked into the Madoff case at the same time, this did not lead to any serious investigations or interventions. If a serious investigation would have been performed, this would probably have led to the successful detection of Madoff's Ponzi scheme, as it was clear that there were no actual investments made in this case. It is possible that SEC's supervisory officers believed that they had made the right call, which suggests overconfidence.

Leaders play a key role in improving joint decision-making by creating cooperative trust and goal commitment

Even though 'quick fixes' such as debiasing training and decision-making tools are widely used as they are relatively easy to implement (Sibony, 2020), the findings of this dissertation imply that the use of tools is insufficient in itself to reduce bias and improve decision-making. Providing supervisory officers with information about the risks of biases or practical tools that aim to improve joint decision-making was ineffective in increasing awareness or decision quality (Chapters 2 and 3). The social context probably more strongly predicts the quality of decision-making than practical tools (Kish-Gephart et al., 2010). For example, for decision-making tools to be effective, it seems essential that the chairman allows dissenting views. This dissertation suggests that participative leaders play an important role in setting the conditions that support informed and timely decision-making. Participative leadership was related to higher levels of cooperative trust and goal commitment and, in turn, to more reflectiveness and decisiveness (Chapter 4). Therefore, rather than implementing practical tools, leaders would possibly do well to demonstrate participative leadership behaviours by inviting others to share their perspectives and taking their views into account during decision-making. This may stimulate supervisory officers to make informed and timely decisions.

Reflection on the Madoff case. As there were many supervisory officers involved in the supervision of Madoff's business, it is not surprising that some of them challenged decisions that the SEC had made on this case. The Office of Investigations (2009) even found that one of SEC's supervisory officers initiated a legal investigation into the possibility of a Ponzi scheme but was not allowed to pursue it. This suggests that opposing views were possibly not taken seriously and even ignored within the SEC. It might have been the case that SEC's leaders were unsuccessful in creating a supportive environment where supervisory officers felt they could freely speak their minds and experienced that their voice was being heard. This relates to the current dissertation's findings on the importance of a social climate, characterised by cooperative trust and goal commitment, for effective joint decision-making (Theme 3). It might have been the case that there was, in general, a lack of participative leadership within the SEC, possibly leading to low levels of cooperative trust and goal commitment. This might have led to little effort to reflect on one's assumptions, develop a mutual understanding of the case and, consequently, to flawed decision-making.

In summary, although this remains a matter of speculation, psychological processes that might have influenced SEC's flawed decision-making with regard to the Madoff case were possibly a combination of confirmation bias and overconfidence, a lack of participative leadership, and low levels of experienced cooperative trust and goal commitment.

Contributions to science

The current dissertation contributes to science in the following ways. First, an important scientific contribution of this dissertation is that it has extended the existing body of knowledge on regulatory decision-making. This dissertation has provided more systematic insight into *psychological processes* that influence the decision-making of supervisory officers. To date, regulatory decision-making has been mainly investigated from a legal perspective, by making qualitative assessments of individual cases after the occurrence of particular incidents (Ottow, 2015a). Even though this approach can be helpful in learning from 'what went wrong' in a particular case so as to prevent it from happening again, the findings of these assessments are often not generalisable to other regulatory contexts. This dissertation has provided a novel social psychological approach to examine regulatory decision-making. This means that I looked into the individual beliefs of supervisory officers but also into the role that group dynamics, team climate, and leadership play in their decision-making. This dissertation was one of the first to provide more insight into the impact of the social context in which

supervisory officers are embedded on a day-to-day basis. I hope this will pave the way for more social psychological research to be conducted in supervisory practice to further increase the knowledge on psychological processes that influence regulatory decision-making.

Second, this dissertation contributed to the literature on decision-making by testing various *strategies* that aim to increase awareness about the risks of biases and to improve the quality of decision-making. In the current literature, evidence is mixed as to whether common decision-making strategies, such as debiasing training and decision-making tools, significantly increase decision quality (Sohrab et al., 2015). This dissertation's findings add to this literature by suggesting that the use of tools is probably ineffective in itself to improve joint decision-making and that it might be more effective to intervene in the social context, for instance, by fostering participative leadership and a supportive team climate. However, in research on decision-making to date, strategies that intervene in these aspects of the social context have not been focused on so far. This is surprising as leadership and team climate strongly predict individual behaviour (Kish-Gephart et al., 2010). The findings of the current dissertation support this prior research, as participative leadership was found to be associated with more reflectiveness and decisiveness. This suggests that organisations would probably do well to foster this type of leadership. This would also suggest that it might be worthwhile for future research to look for decision-making strategies that intervene in the social context in which supervisory officers are embedded on a day-to-day basis.

Third, this dissertation enriches the current literature on decision-making by developing *innovative research methods* that help to identify and assess the quality of regulatory decision-making, based on methods that are typical to social psychology but relatively new to the field of supervision. In practice, it is often highly difficult to define decision quality, as there are often many external factors that determine how decisions come about in the real world. Moreover, the effectiveness of interventions to increase awareness or the quality of decision-making is often not tested in practice, meaning that it often remains unclear whether interventions worked as intended or rather had negative side effects. In this dissertation, I designed and conducted field experiments that enabled me to operationalise decision quality and test the effects of different strategies. Moreover, to assess the extent to which supervisory bodies are able to make both informed and timely decisions, which is necessary for them to act effectively, I developed a 10-item Joint Decision-Making Questionnaire that measures 'reflectiveness' as well as 'decisiveness'. Prior psychological research was focused

mainly on improving deliberation to improve decision quality (e.g., De Dreu et al., 2008), overlooking timeliness as an important aspect of decision-making. This questionnaire has offered a new way for researchers to assess decision-making quality by measuring both reflectiveness and decisiveness as essential elements of regulatory decision-making.

Finally, this dissertation contributed to narrowing the *research-to-practice gap* by conducting all empirical studies among supervisory officers themselves, replicating findings from prior research on decision-making. Previous psychological research into decision-making has mostly been conducted among student samples (Schulz-Hardt & Mojzisch, 2012). This prior research was often performed in lab conditions, using decision-making tasks that students often do not have experience with, such as recruitment or investment tasks. This implies that little is yet known about the decision-making of professionals, even though their decisions can have more impactful consequences for society. This dissertation has shown that supervisory officers demonstrate particular flaws in judgement (e.g., bias blind spot, confirmation bias, overconfidence) that were also found in prior research among students (Brodbeck et al., 2007; Pronin, 2007). This suggests that one can rely, to some extent, on previous research that was conducted among student samples. Furthermore, as similar results were found among diverse samples of external and internal supervisors, it seems that the findings of this dissertation are relevant to both types of supervisors. This hopefully encourages researchers to not only focus on the differences between external and internal supervisors but also on the similarities between them with respect to the psychological processes that impact their judgement and decision-making.

Limitations and future research directions

Despite its contributions, several limitations should be considered when interpreting the results of this dissertation. These limitations also suggest new questions for future research to take the next steps in understanding human pitfalls in regulatory decision-making and seeking strategies to reach informed and timely decisions.

First, because part of this dissertation examined the extent to which supervisory officers are aware of biases and how they evaluate their decision-making, two out of three empirical chapters primarily relied on self-reported outcomes, such as the bias blind spot (Chapter 2) and perceived decision-making behaviours (Chapter 4). This approach might have led to overly positive responses, as people

tend to see themselves in a positive light. Even though it is difficult to define and measure decision quality in real-life settings (Amason, 1996), future researchers could examine how these subjective measures relate to actual decision-making behaviours of supervisory officers. For example, it would be interesting to investigate how the reported reflectiveness and decisiveness of supervisory teams relate to the time spent on taking formal measures and to the 'acceptance' of these measures. Based on this dissertation's findings, it would be expected that teams that score high on both reflectiveness and decisiveness reach decisions on formal measures at a quicker pace and with a higher acceptance rate than teams that score lower on both behaviours. For this aim, the newly developed *Joint Decision-Making Questionnaire* can be used to measure the reflectiveness and decisiveness of supervisory teams (see Chapter 4).

Second, the use of field experiments in this dissertation was an innovative approach to examine regulatory decision-making and has provided more insight into biases that affect the decision-making of supervisory officers and the effectiveness of common decision-making strategies. Even though I developed and used tasks that were directly relevant to supervisory practice, the experiments were performed in artificial settings rather than in real-life circumstances. For example, the hidden-profile experiment (in Chapter 3) demonstrated confirmation bias in groups of supervisory and managing board members during a workshop where participants were not yet familiar with each other. Nevertheless, this result is likely to apply to existing boards, as board members who have more experience with working together might increasingly share similar assumptions (Phillips et al., 2004). Possibly, this further increases the risk of groupthink and suboptimal decisions. Future research should confirm the findings of this dissertation to real-life circumstances, for instance, by directly observing the decision-making of actual supervisory boards or teams (Engbers, 2020).

Third, this dissertation focused on individual beliefs, group dynamics, and leadership, meaning that macro-level factors that influence regulatory decision-making were not considered. For example, the regulatory approach of a particular supervisory body could influence how supervisory officers reach their decisions. Principle-based supervision, for instance, leaves more room for interpretation compared to rule-based supervision, which might increase the risk of biases in decision-making (Jansen & Aelen, 2015). Moreover, the responsibility to account for and be transparent about one's decisions can cause supervisory bodies to be particularly careful in their decision-making (Aleksovska et al., 2019). Also, the external political pressure may determine the extent to which supervisory

officers act decisively on a particular matter (Berry, 2010). This external pressure might even lead to 'regulatory capture', causing supervisory bodies to primarily serve the political or commercial interest rather than the public interest (Dal Bó, 2006). Future research could scrutinise the joint effects of micro (e.g., individual beliefs), meso (e.g., group norms), and macro-level factors (e.g., political forces) on regulatory decision-making to fully understand the underlying processes.

Fourth, even though the current dissertation touched upon a broad range of psychological processes that impact regulatory decision-making, it did not consider context-dependent circumstances that may influence the quality of decision-making, such as the time and place where decisions are reached. For example, the influence of 'noise' on decision-making has increasingly received attention in science and practice. Kahneman et al. (2021) defined noise as 'unwanted variability', which refers to the reason why judgements that should be identical vary. For example, even though two doctors have identical information, they reached different decisions as they formed their judgements at different times of the day. Unlike bias, noise cannot be detected in individual decisions but rather explains differences between them. As this dissertation focused primarily on the influence of bias, it would be interesting for future research to also examine the impact of noise on regulatory decision-making and to seek strategies that aim to reduce noise as much as possible.

Finally, as this dissertation reflected on the role of biases in the decision-making of supervisory officers, it is appropriate to also reflect on the potential influence of biases on my own decision-making while writing this dissertation. First of all, it is good to acknowledge that I am trained as a social and organisational psychologist, meaning that I have relatively more knowledge of psychological processes in groups and organisations than the applied context of supervisory practice. When I started my PhD research, I simultaneously started a position as a supervisory officer at the Dutch Authority for the Financial Markets. Even though I regularly met with supervisory officers who work in other domains than the external supervision of the financial sector, this role might have influenced my perspective on regulatory decision-making. For example, most incidents and scandals that I described throughout this dissertation occurred in the financial markets. Although I am quite confident that the implications of this dissertation are relevant for various types of supervisory bodies, it is likely that my findings apply more strongly to supervisory bodies where strategic decisions are made mostly in groups and that specifically attempt to make informed and timely decisions to prevent harm to society.

Practical implications

Based on the findings of the current dissertation, this section discusses what supervisory officers can do themselves to make informed and timely decisions and what leaders can do to support them. Even though leaders play a key role in fostering the conditions that stimulate supervisory officers to act reflectively and decisively, other actors within organisations might also take on a supportive role. Below, I reflect on possible actions that human resource managers, organisational consultants, and information managers can take. These actions could also inspire other actors that are in a position to contribute to improving the decision-making of supervisory officers. This fits the current dissertation's systemic approach in considering supervisory officers as part of a system where various actors can support supervisory officers in making decisions.

First of all, *supervisory officers* would do well to acknowledge that their decision-making might be prone to biases. However, as it can be difficult for individuals to become more aware of and correct for their own biases, supervisory officers are advised to challenge assumptions made by others. For example, in joint decision-making, they would do well to challenge the initial preference, even when all group members agree with each other. The reason for this is that the initial preference may bias the decision-making, leading to suboptimal decisions. Moreover, supervisory officers should be cautious with applying unproven tools for this aim, as this could create a false sense of security. The use of a tool can make supervisory officers more satisfied with the decision-making while it does not improve the actual decision quality. This indicates that supervisory officers would do well to remain critical of assumptions during decision-making. For example, they could explicitly invite others to share their perspectives and jointly analyse which information might still be missing. They would also do well to stimulate the group to work towards decision closure, for instance, by setting deadlines, in order to make informed and timely decisions.

Leaders play an important role in creating the conditions that support supervisory officers to critically reflect on each other's assumptions and to act decisively. When leaders show participative behaviours, supervisory officers are more likely to experience that they can openly deal with issues in the team (i.e., cooperative trust) and feel committed to the team goals (i.e., goal commitment). This stimulates supervisory officers to consider different views and to reach decisions in a timely way. Leaders at all organisational levels could, for instance, explicitly ask for various alternatives rather than one preferred option and actively invite others to share their opinions during group decision-making. Therefore, leaders (e.g., team

leaders, managing board members, chairs of supervisory boards) are advised to communicate clearly what they expect from others in the decision-making process. For example, leaders can ask team members to share their perspectives early in the decision-making process so that the team can weigh various perspectives and the pros and cons of each alternative option. In this way, the team can probably see the full picture more quickly and reach an informed decision in a timely fashion.

Human resource managers within supervisory bodies can use the insights of the current dissertation for various processes, such as recruitment and selection, and training and development. Regarding recruitment and selection, human resource managers can describe competencies necessary for informed and timely decision-making, such as reflectiveness and decisiveness. For example, supervisory officers can be expected to reflect on their assumptions and consider alternative views when reaching decisions, even when some of the risks are uncertain. These competencies can be used in hiring decisions as criteria that are essential for the task performance of supervisory officers. Moreover, they can be used in team composition to make sure that both competencies are represented by different members of a team. Regarding training and development, human resource managers can develop training programs that help supervisory officers develop these competencies and learn how to apply them on a daily basis. For instance, in a training session, groups can practice the desired decision-making behaviours by jointly evaluating the lessons learned from prior cases regarding the decision-making of the supervisory body.

Organisational consultants can develop formats and processes that stimulate supervisory officers to consider different perspectives. For example, a format in which supervisory officers draft their 'proposal for decision' to higher management can remind them of the steps they should take to make a deliberate decision. A question on this format might be whether supervisory officers have tested their assumptions with teams or departments that are experts on the particular matter. Organisational consultants can also formalise processes, for instance, by explicitly stating at which moment in time cases should be discussed with higher management. Escalation to higher management can enrich and speed up the decision-making, as higher management can often provide broader insights on a particular matter. This may stimulate supervisory officers to think thoroughly about why one decision alternative might be a better option than another and to work towards decision closure more quickly. As a consequence, decisions about whether or not to intervene are made deliberately and in a timely fashion at an adequate level within the organisation.

Lastly, *information managers* could think about systems, structures, and procedures that support supervisory officers in their attempt to reach informed and timely decisions. Although this was beyond the scope of this dissertation, reaching decisions in a more data-driven way could help to quickly process and analyse large amounts of information. For example, the use of 'machine learning algorithms' is seen as an optimal solution that aims to increase the pace of decision-making when a lot of data is available to the decision-maker. However, as algorithms base decisions on historical data, one should stay vigilant of the risk that human biases are reinforced by the data. For instance, biased algorithms may incorrectly associate a particular individual characteristic to an increased risk of unlawful and unethical behaviour, which can lead to a 'red flag' in the system. When decisions are based on these red flags and are implemented on a large scale, this can have impactful and even detrimental consequences for individuals and society. Hence, data-driven decision-making probably needs just as much care as human decision-making, thus increasing the relevance of the findings of this dissertation.

Conclusion

From a novel social psychological perspective, the current dissertation has provided more insight into psychological processes that could influence the decision-making of supervisory officers. This dissertation showed that even well-trained and experienced supervisory officers are 'only human' and are, therefore, affected by biases in their decision-making. This dissertation further suggests that leaders play a key role in creating the conditions that support supervisory officers in making decisions, by demonstrating participative leadership behaviours and shaping a supportive team climate. Over the past decade, supervisory bodies have become increasingly critical of the decision-making of supervised entities. I hope that the insights of this dissertation inspire supervisory bodies to also scrutinise their own processes and to intervene in the social context to improve the quality of their decision-making. In this way, supervisory bodies may become more effective in making informed and timely decisions and, subsequently, in preventing harm to society.

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Appendices

Chapter 2

Appendix A

Table A1. Bias blind spot measurement, translated from Dutch to English[1]

Type of bias	Asked: Psychological research has shown that some people demonstrate particular tendencies. Assess to what extent you think that you show the following tendencies in your work *yourself* and to what extent the *average Dutchman* shows these tendencies. The examples are provided purely for illustrative purposes.
Halo-effect	**The tendency to attribute positive characteristics to a person or situation based on one experience or impression.** For example, some people judge the skills of a sympathetic board member more positively than is correct.
Confirmation bias	**The tendency to look for information that confirms one's existing ideas and to ignore alternatives.** For example, some people ignore conflicting evidence about a case so that their initial judgement is reinforced.
Availability bias	**The tendency to make predictions of future events based on direct examples drawn from memory.** For example, some people judge a new product too negatively, because a similar one received negative media attention in the past.
Information bias	**The tendency to look for more information, even if it does not influence the decision to be made.** For example, some people continue to collect new information, causing them to continuously postpone their decision.
Single outcome calculation	**The tendency to determine the outcome of a decision based on the opinion of others.** For example, some people let themselves be guided by the opinion of their colleagues, while alternatives remain unheard.
Ambiguity aversion	**The tendency to prefer known risks over unknown risks.** For example, some people prefer to work on a case in which the risks are clear, rather than working on a case in which information about certain risks is missing.
Illusion of control	**The tendency to estimate the likelihood of success being greater than would be realistic.** For example, some people think that a particular measure will achieve more success than is justified because of its previous success in an unrelated case.
Anchoring effect	**The tendency to use initial values to determine outcomes.** For example, some people judge a supervised entity's scores on a survey as worse than is appropriate because they compare it with scores they had just seen before.
Impact bias	**The tendency to overestimate the consequences of a decision on a specific situation in terms of intensity or duration.** For example, some people expect that imposing a fine has consequences that are too impactful, while it turns out to be not so bad.
Asked for each bias	To what extent do you show this tendency? (1 = not at all, 7 = very much) To what extent does the average Dutchman show this tendency? (1 = not at all, 7 = very much)

1 The original bias blind spot measurement in Dutch can be found in Coffeng et al. (2021a).

Appendix B

Table B1. Manipulations used in Study 2, translated from Dutch to English[2]

Experimental condition	Instruction
'Guard'-instruction	**Supervisory officers should guard themselves against bias** Supervisory officers are expected to act independently and to form an objective opinion. However, scientific research has shown that many people demonstrate 'biases' (i.e., thinking errors) in the way they process information (Tversky & Kahneman, 1974). This can lead to a distorted image or a misinterpretation of the facts and, consequently, to biased decisions. There is reason to believe that supervisory officers in particular should guard themselves against biases in their professional decision-making. For example, prior research has shown that, over time, many supervisory officers no longer check their assumptions and have a ***more biased view*** of new cases (Stocker, 2017). This can be detrimental to the objectivity of one's decision-making and can lead to unjustified decisions. In many cases, supervisory officers should, therefore, ***guard themselves against biases*** when forming their judgement.
'Strive'-instruction	**How supervisory officers can be as objective as possible** Supervisory officers are expected to act independently and to form an objective opinion. However, scientific research has shown that many people demonstrate 'biases' (i.e., thinking errors) in the way they process information (Tversky & Kahneman, 1974). This can lead to a distorted image or a misinterpretation of the facts and, consequently, to biased decisions. There is reason to believe that supervisory officers are biased in their professional decision-making. For example, prior research has shown that supervisory officers can never be 100% objective and should therefore ***strive*** for an objective decision-making process as much as possible (Stocker, 2017). To do so, they can take time for reflection, critically examine their assumptions and actions, and analyse their decisions afterwards. In many cases, supervisory officers can reach a judgement ***as objectively as possible*** in this way.
'Trust'-instruction	**Supervisory officers can rely on their experience** Supervisory officers are expected to act independently and to form an objective opinion. However, scientific research has shown that many people demonstrate 'biases' (i.e., thinking errors) in the way they process information (Tversky & Kahneman, 1974). This can lead to a distorted image or a misinterpretation of the facts and, consequently, to biased decisions. Yet, there is reason to believe that supervisory officers do not have to be concerned about biases in their professional decision-making. For example, prior research has shown that supervisory officers unconsciously ***learn*** from their previous decisions, which means that in future cases they are more likely to 'recognise' what is going on (Stocker, 2017). This can lead them to make the right choices intuitively and reach a judgement faster and more effectively. In many cases, supervisory officers can, therefore, ***rely on their experience*** when forming a judgement.

2 The original instruction texts in Dutch can be found in Coffeng et al. (2021a).

Appendix C

As shown in Table C1, pairwise comparisons of conditions, as anticipated, showed that participants in the 'guard'-condition scored higher on the first question, the 'strive'-condition scored higher on the second question, and the 'trust'-condition scored higher on the third question. As these differences were all significant except for one, we considered the manipulation check successful as the instructions were overall perceived as intended.

Table C1. Manipulation check for the field experiment in Study 2

To what extent did this text state that supervisory officers…	Pairwise comparisons of conditions	Total *M (SD)*	*p* <
… should guard themselves against biases?	'Guard'	5.84 (1.17)	
	'Strive'	5.00 (1.85)	.05
	'Trust'	3.44 (1.46)	.001
… should strive for a decision-making process that is as objective as possible?	'Strive'	5.30 (1.74)	
	'Guard'	4.73 (1.45)	ns
	'Trust'	3.39 (1.87)	.001
… can rely on their experience?	'Trust'	5.31 (1.49)	
	'Guard'	2.19 (1.17)	.001
	'Strive'	1.91 (1.13)	.001

Appendix D

Table D1. ANCOVA results of the field experiment in Study 2

Variable by condition	Total *M (SD)*	Effect of condition	Effect of age	Effect of years of employment
Vigilance		$F(3,132) = 2.48$, $p = .064$	$F(1,132) = .30$, $p = .583$	$F(1,132) = .06$, $p = .806$
Control	3.00 (1.18)			
'Guard'	2.82 (1.24)			
'Strive'	2.73 (1.26)			
'Trust'	2.24 (1.19)			
Self-perceived objectivity		$F(3,132) = .91$, $p = .436$	$F(1,132) = .30$ $p = .587$	$F(1,132) = .78$, $p = .379$
Control	5.01 (1.17)			
'Guard'	5.14 (.90)			
'Strive'	4.88 (.85)			
'Trust'	5.23 (.86)			
Bias blind spot		$F(3,132) = 1.08$, $p = .360$	$F(1,132) = 4.52$, $p = .035$	$F(1,132) = .15$, $p = .698$
Control	.44 (.57)			
'Guard'	.43 (.61)			
'Strive'	.52 (.64)			
'Trust'	.63 (.73)			

Chapter 3

Appendix E

To provide some insight into all 42 groups that had reached a decision, we examined the relationship between the number of group members that initially preferred the best candidate (B) and the group decision. The results in Table E1 show that when more group members initially preferred candidate B, there was a higher chance that this objectively best candidate was chosen. To illustrate, when only one group member initially preferred candidate B, this candidate was chosen by merely two groups, but when two group members initially preferred candidate B, it was chosen by five groups (see Table E1).

Table E1. Number of group members that initially preferred the best candidate (B) by group decision

Number of group members that initially preferred the best candidate (B)		Group decision: Suboptimal candidate (A or C)	Group decision: Best candidate (B)	Total
Zero	*N*	18	0	18
	%	100%	0%	100%
One	*N*	14	2	16
	%	88%	12%	100%
Two	*N*	2	5	7
	%	29%	71%	100%
Three	*N*	0	1	1
	%	0%	100%	100%
Total	*N*	34	8	42
	%	81%	19%	100%

Chapter 4

Appendix F

Study 1a

The sample of supervisory officers (*N* = 87) consisted of 49 women (56%) and 38 men, whose average age was 48 years (*range* = 25–72). Almost all participants (97%) had completed higher education (i.e., higher professional education or university education). Moreover, 38% of the participants had previously worked in the specific sector which they currently supervised. Finally, 16% held a managerial position. The background variables did not significantly correlate with reflectiveness or decisiveness (see Table F1).

Table F1. Descriptive statistics and correlations for background variables and dependent variables

Variable	*M*	*SD*	Reflectiveness	Decisiveness
Gender (0 = male, 1 = female)			-.20	-.05
Age	47.71	9.81	-.10	.02
Education (0 = low, 1 = high)			-.02	-.05
Working hours per week	33.99	5.36	-.01	-.19
Years of employment with the organisation	10.75	9.43	-.03	.08
Employment in the supervised sector (0 = no, 1 = yes)			-.03	.06
Managerial position (0 = no, 1 = yes)			.09	.10

Study 1b

The sample of supervisory board members (*N* = 158) consisted of 49 women (31%) and 109 men, whose average age was 57 years (*range* = 25–73). Almost all participants (98%) had received higher education (i.e., higher professional education or university education). One-third (32%) of the participants had worked previously in the sector they currently supervised. From all the background variables, only gender and working hours were significantly but weakly ($r < .30$) correlated with decisiveness (see Table F2).

Table F2. Descriptive statistics and correlations for background variables and dependent variables

Variable	*M*	*SD*	Reflectiveness	Decisiveness
Gender (0 = male, 1 = female)			.12	-.20*
Age	57.34	8.20	.14	.03
Education (0 = low, 1 = high)			-.02	.02
Working hours per month	14.57	9.46	.09	.21**
Years of employment as a supervisory board member	6.49	6.30	.09	-.08
Employment in the supervised sector (0 = no, 1 = yes)			-.11	-.12

Note. * $p < .05$, ** $p < .01$.

Study 2

More than a quarter (28%) of supervisory officers (N = 271) were a member of their team for less than one year. The average team size was 12 (*range* = 3–39). These variables did not significantly correlate with any of the dependent variables (see Table F3).

Table F3. Descriptive statistics and correlations for background variables and dependent variables

Variable	*M*	*SD*	Cooperative trust	Goal commitment	Reflectiveness	Decisiveness
Team member for less than one year (0 = no, 1 = yes)			.08	.05	.12	.11
Team size	12.44	6.49	-.10	-.05	-.09	-.08

Study 3

Almost all supervisory officers (97%; N = 213) were working from home at the moment of data collection during the COVID-19 crisis, which was significantly but weakly correlated with cooperative trust (at Time 2; see Table F4). The average team size was 12 (*range* = 5–38), which did not correlate with any of the dependent variables.

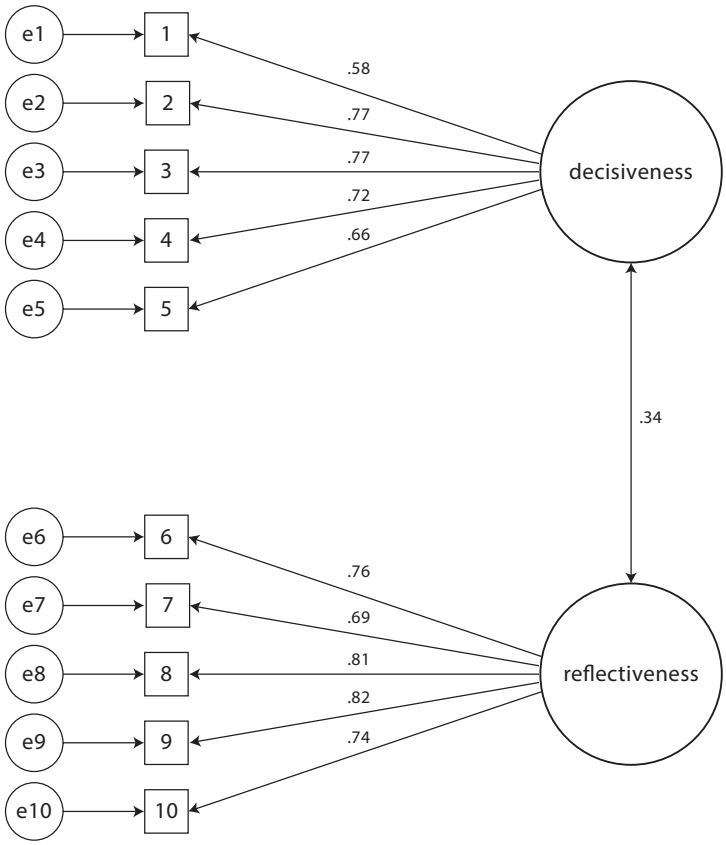
Table F4. Descriptive statistics and correlations for background variables and dependent variables (at Time 2)

Variable	*M*	*SD*	Cooperative trust	Goal commitment	Reflectiveness	Decisiveness
Working from home (0 = no, 1 = yes)			.15*	-.01	.08	-.01
Team size	12.20	6.09	-.03	.03	-.01	.05

Note. * $p < .05$.

Appendix G

Figure G1. Two-factor model of reflectiveness and decisiveness showing standardised factor loadings



Appendix H

Figure H1. Scatterplot showing the relationship between reflectiveness and decisiveness (*N* = 158)

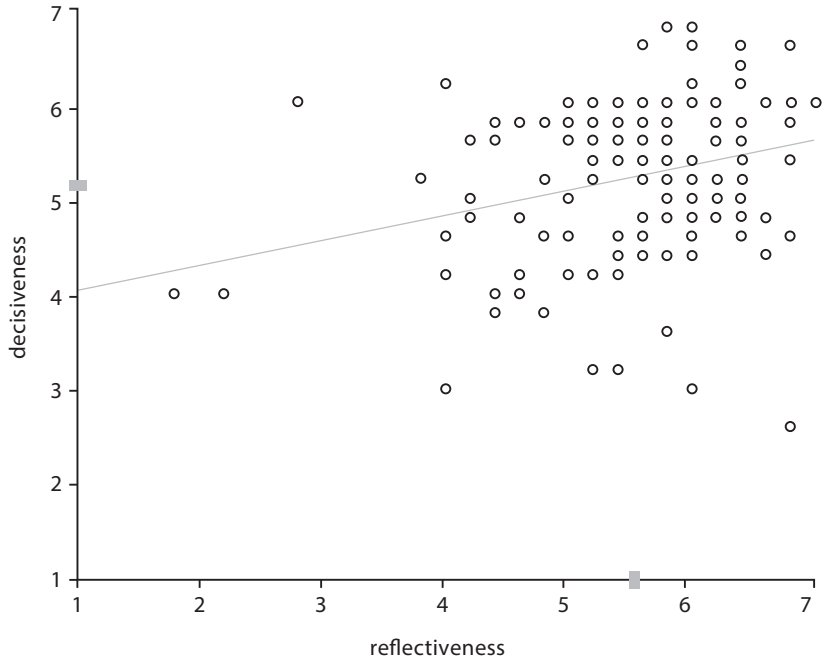
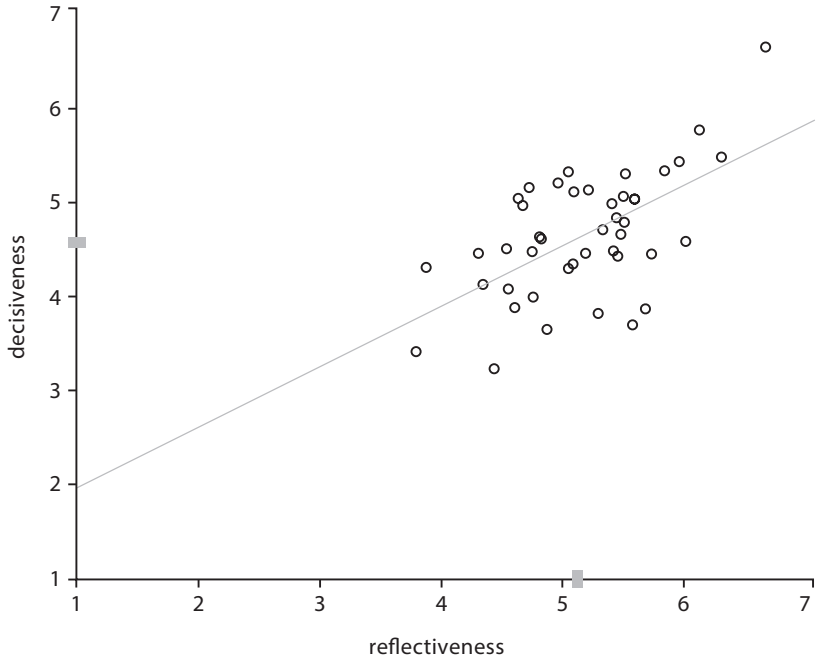


Figure H2. Scatterplot showing the relationship between reflectiveness and decisiveness ($N_{teams} = 44$)



Appendix I

To determine whether data aggregation at the team level is accurate, we calculated interrater agreement coefficients for multi-item indices (median $r_{WG(J)}$) compared to a uniform and slightly skewed distribution and intra-class correlations (ICC1 and ICC2). These statistics are reported for each measure in Table I1. As all median $r_{WG(J)}$ values were above .70, all ICC1 values exceeded .05, and all ICC2 scores except for one were higher than .40, it was justified to aggregate the data at the team level.

Table I1. Interrater agreement coefficients (median $r_{WG(J)}$) and intra-class correlations (ICC1 and ICC2)

Variable	$r_{WG(J),uniform}$	$r_{WG(J),skewed}$	ICC1	ICC2	$p <$
Study 2					
Participative leadership	.94	.90	.16	.54	.001
Coaching leadership	.93	.90	.24	.66	.001
Informing leadership	.94	.90	.14	.50	.01
Cooperative trust	.87	.80	.15	.52	.001
Goal commitment	.83	.73	.22	.64	.001
Reflectiveness	.91	.85	.16	.53	.001
Decisiveness	.88	.81	.12	.46	.01
Study 3					
Cooperative trust	.87	.82	.13	.43	.01
Goal commitment	.87	.81	.14	.45	.01
Reflectiveness	.81	.73	.10	.35	.05
Decisiveness	.83	.76	.13	.42	.01

Appendix J

Because of moderate to strong correlations between the study variables in Study 2, confirmatory factor analyses (N = 271) were conducted to determine whether the variables captured statistically distinct constructs. As can be seen in Table J1, the proposed 7-factor model showed a better fit than the alternative models in which variables that correlated strongly were combined into fewer factors. A chi-square difference test between the proposed 7-factor model (M1) and the best alternative model (M2) showed that the proposed model fits the data significantly better than the best alternative model ($X^2(6, N = 271) = 136.57$, $p < .001$). Thus, these analyses revealed that the study variables can be statistically distinguished.

Table J1. Fit indices for proposed and alternative models

Model	X^2	*df*	*p* <	*TLI*	*CFI*	*RMSEA*
M1: Proposed 7-factor model	1140.04	270	.001	.89	.90	.06
M2: Alternative 6-factor model	1276.61	270	.001	.88	.89	.07
M3: Alternative 6-factor model	1394.87	270	.001	.86	.87	.08
M4: Alternative 6-factor model	1457.44	270	.001	.85	.86	.08
M5: Alternative 6-factor model	1352.55	270	.001	.86	.88	.07
M6: Alternative 6-factor model	1555.91	270	.001	.83	.85	.08
M7: Alternative 5-factor model	1526.49	270	.001	.84	.85	.08
M8: Alternative 5-factor model	1903.09	270	.001	.78	.80	.10

Note. M2: Alternative 6-factor model = Cooperative trust and reflectiveness combined into one factor; M3: Alternative 6-factor model = Goal commitment and decisiveness combined into one factor; M4: Alternative 6-factor model = Cooperative trust and decisiveness combined into one factor; M5: Alternative 6-factor model = Cooperative trust and goal commitment combined into one factor; M6: Alternative 6-factor model = Reflectiveness and decisiveness combined into one factor; M7: Alternative 5-factor model = Cooperative trust and reflectiveness combined into one factor, and goal commitment and decisiveness combined into one factor; M8: Alternative 5-factor model = Participative leadership, coaching leadership and informing leadership combined into one factor.
TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation.

Nederlandse samenvatting (Dutch summary)

Van toezichthouders wordt verwacht dat zij onafhankelijk en objectief besluiten nemen en tijdig interveniëren om maatschappelijke schade te voorkomen (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2001). Dit is echter makkelijker gezegd dan gedaan. Verschillende incidenten en schandalen uit het verleden hebben uitgewezen dat toezichthouders soms te laat ingrijpen, ondanks alarmerende signalen die zij al eerder onder ogen kregen (Ottow, 2015a). Bekende schandalen in Nederland waarbij dit het geval was, waren bijvoorbeeld de fipronil-affaire (ofwel de eiercrisis) van 2017 en het Fyra-debacle van 2013. Ook in andere landen zijn incidenten voorgekomen waarbij toezichthouders de kritiek kregen dat zij te laat optraden. Zo kwam bijvoorbeeld pas in 2020 grootschalige fraude aan het licht bij de Duitse betaaldienstverlener Wirecard, terwijl de verantwoordelijke toezichthouder BaFin hier al jaren eerder verschillende signalen over had ontvangen. Het besluit van toezichthouders om niet te interveniëren op basis van alarmerende signalen kan dus impactvolle consequenties hebben voor consumenten en de maatschappij als geheel.

Eerdere incidenten suggereren dat toezichthouders soms de verkeerde conclusie trekken op basis van beschikbare informatie, zoals signalen over illegaal of onethisch gedrag van individuen en organisaties. Een verklaring hiervoor is dat toezichthouders mogelijk niet zo rationeel handelen als wordt vooronderstelld, maar last hebben van denkfouten (in het Engels: *cognitive biases*) in de besluitvorming. Denkfouten ontstaan wanneer mensen worden beïnvloed door hun persoonlijke waarden en overtuigingen bij het nemen van besluiten, wat kan leiden tot suboptimale beslissingen (Tversky & Kahneman, 1974). Zo kan *confirmation bias* ervoor zorgen dat toezichthouders alleen bevestiging zoeken voor hun bestaande ideeën en kan *information bias* ertoe leiden dat toezichthouders hun besluiten onnodig lang uitstellen. De vraag is of toezichthouders als ervaren beslissers inderdaad denkfouten vertonen in hun besluitvorming. Met dit proefschrift hoop ik hier meer inzicht in te geven en toezichthouders te inspireren volgende stappen te zetten in het verbeteren van hun besluitvorming om effectiever op te treden en maatschappelijke schade te voorkomen.

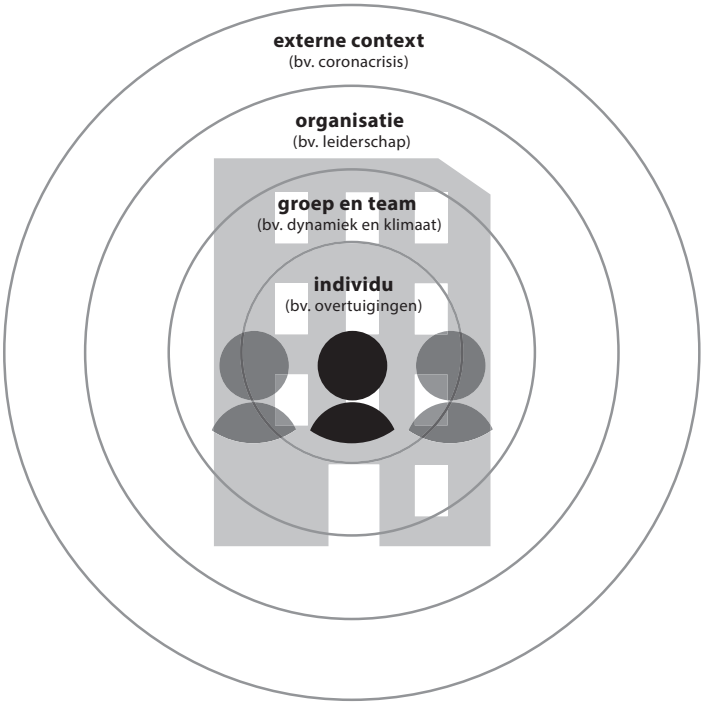
Doel van dit proefschrift

In dit proefschrift richt ik mij ten eerste op de vraag in hoeverre toezichthouders zich bewust zijn van hun denkfouten en of zij hierdoor worden beïnvloed in hun besluitvorming. Ten tweede richt ik mij op de vraag wat effectieve strategieën zijn om de besluitvorming van toezichthouders te verbeteren, zodat zij weloverwogen én tijdig besluiten nemen.

In dit proefschrift zal ik deze vragen proberen te beantwoorden vanuit een nieuw sociaal psychologisch perspectief. Dit houdt in dat ik de besluitvorming van toezichthouders niet in een vacuüm bekijk, maar ook aandacht heb voor de sociale context waarin toezichthouders besluiten nemen. Dit perspectief onderstreept het belang om het 'systeem' inzichtelijk te maken waarin individuele toezichthouders op dagelijkse basis opereren en beslissingen nemen. Dit heeft als doel om beter te begrijpen hoe toezichthouders worden beïnvloed door hun omgeving, zoals hun collega's en leidinggevende, bij het nemen van besluiten. Daarom onderzoek ik zowel de individuele overtuigingen van toezichthouders als de invloed van groepsdynamiek, teamklimaat en leiderschap op de besluitvorming van toezichthouders (zie Figuur 1). Daarnaast onderzoek ik de impact van de eerste piek van de coronacrisis op de besluitvorming. De plotselinge overgang naar het volledig thuiswerken waarbij overleg alleen nog virtueel plaatsvond, heeft toezichthouders mogelijk gehinderd om perspectieven uit te wisselen met hun collega's en gezamenlijk goede besluiten te nemen.

De systemische benadering van dit proefschrift biedt kansrijke strategieën voor het verbeteren van de besluitvorming van toezichthouders door in te grijpen op de sociale context. Dit leidt tot nieuwe inzichten die toezichthouders hopelijk meer bewust maken van de risico's van denkfouten. Ook geeft dit leidinggevenden meer richting om toezichthouders te ondersteunen bij het nemen van besluiten en om de besluitvorming te verbeteren.

Figuur 1. Een sociaal psychologisch perspectief op de besluitvorming van toezichthouders



Toezichthouders besteden steeds meer aandacht aan het identificeren van factoren in de sociale context die van invloed kunnen zijn op de besluitvorming van een onder toezicht staande instelling. Zij stimuleren bijvoorbeeld leiders van onder toezicht staande instellingen om aan te sturen op evenwichtige belangenafweging (AFM, 2017). Daarentegen lijkt het erop dat toezichthouders relatief weinig prioriteit geven aan het op deze manier onderzoeken van hun eigen besluitvorming (Van Steenbergen, 2021). De besluitvorming van toezichthouders is tot nu toe met name onderzocht in het licht van specifieke incidenten om na te gaan wie hiervoor (mede)verantwoordelijk was. Dit betekent tegelijkertijd dat er nog weinig wetenschappelijk onderzoek is verricht naar processen die vanuit de sociale context meer structureel van invloed zijn op de besluitvorming van toezichthouders (Van Erp & Van der Steen, 2018). Dit proefschrift adresseert deze lacune in de literatuur door psychologische processen te onderzoeken die, zowel op individueel als op groepsniveau, mogelijk van invloed zijn op de besluitvorming van toezichthouders. Daarnaast heb ik verschillende strategieën getest die als doel hebben om bewustzijn te verhogen en besluitvorming

te verbeteren, zoals het informeren van toezichthouders over de risico's van denkfouten en het aanreiken van praktische hulpmiddelen voor het nemen van een groepsbesluit.

Onder diverse steekproeven van externe toezichthouders (bijvoorbeeld inspecteurs en markttoezichthouders) en interne toezichthouders (bijvoorbeeld leden van Raden van Commissarissen) heb ik vragenlijststudies en veldexperimenten uitgevoerd. Externe en interne toezichthouders streven voor een belangrijk deel dezelfde doelen na, namelijk om regelnaleving en ethisch gedrag binnen organisaties te stimuleren, wat het relevant maakt om beide typen toezichthouders te onderzoeken. Ter voorbereiding op deze studies heb ik exploratieve interviews afgenomen met toezichthouders en wetenschappers. Deze combinatie van methoden stelde mij in staat om onderzoeksvragen te ontwikkelen die direct relevant zijn voor de toezichtpraktijk (via interviews), psychologische processen te onderzoeken die de besluitvorming van toezichthouders mogelijk beïnvloeden (via vragenlijsten) en de effectiviteit van strategieën te testen op het bewustzijn en de besluitvorming van toezichthouders (via veldexperimenten). Alle studies zijn uitgevoerd onder toezichthouders in Nederland, in samenwerking met beroepsverenigingen en toezichthoudende organisaties. De meeste studies zijn uitgevoerd tijdens congressen en workshops, wat een intensieve maar effectieve manier bleek te zijn om data te verzamelen onder toezichthouders. Hieronder beschrijf ik de belangrijkste resultaten van elk onderzoek.

Blinde vlek voor eigen denkfouten

Hoewel er van toezichthouders wordt verwacht dat zij objectief tot hun besluiten komen, is er reden om aan te nemen dat zelfs ervaren beslissers denkfouten vertonen (Schillemans & Giesen, 2020). Wanneer toezichthouders geloven dat zij persoonlijk niet zoveel last hebben van denkfouten, kan deze overtuiging hun besluitvorming negatief beïnvloeden (Scopelliti et al., 2015). De eerste vraag die ik onderzoek is daarom in hoeverre toezichthouders een zogenoemde 'blinde vlek voor eigen denkfouten' (in het Engels: *bias blind spot*; Pronin et al., 2002) vertonen. Daarbij onderzoek ik of het informeren van toezichthouders over de risico's van denkfouten helpt om deze blinde vlek te verkleinen.

Vragenlijstonderzoek toonde aan dat externe en interne toezichthouders (N_{totaal} = 201) inderdaad geloven dat zij in mindere mate denkfouten vertonen dan anderen. Daarnaast bleek dat toezichthouders die zichzelf als objectief beschouwden een grotere blinde vlek hadden voor hun eigen denkfouten. Bovendien bleek dat toezichthouders die waakzamer waren, oftewel meer

beducht waren op denkfouten in de besluitvorming, een kleinere blinde vlek vertoonden. Dit suggereert dat het vergroten van waakzaamheid met betrekking tot de risico's van denkfouten bijdraagt aan het mitigeren van de blinde vlek voor eigen denkfouten.

Een veldexperiment onder externe toezichthouders (N = 138) liet verder zien dat een interventie waarmee toezichthouders op de hoogte werden gesteld van de risico's van denkfouten niet leidde tot meer waakzaamheid of een kleinere blinde vlek. Toezichthouders simpelweg informeren over denkfouten was dus niet voldoende om hen hier meer bewust van te maken. Toch is dit de methode die vaak ten grondslag ligt aan praktische handreikingen en (bij)scholingen voor toezichthouders. Daarnaast zorgde een geruststellende boodschap – waarin toezichthouders te horen kregen dat zij op hun ervaring konden vertrouwen – zelfs voor minder waakzaamheid. Deze boodschap kan daarom beter worden vermeden in het communiceren van verwachtingen richting toezichthouders over hoe zij het beste tot hun besluiten kunnen komen. Uit dit onderzoek bleek dus dat toezichthouders een blinde vlek hebben voor hun eigen denkfouten, die toezichthouders niet zomaar kunnen vermijden als ze zich meer bewust zijn gemaakt van de risico's van denkfouten. Omdat toezichthouders hun eigen denkfouten mogelijk lastig herkennen, is een bredere implicatie van deze bevindingen dat toezichthouders aanvullende ondersteuning – zoals de kritische vragen van anderen – nodig hebben om hun aannames ter discussie te stellen en waakzamer te worden op potentiële denkfouten in de besluitvorming.

Kwaliteit van groepsbesluiten

Omdat er meer perspectieven beschikbaar zijn in een groep wordt er vaak gedacht dat groepen tot betere besluiten komen dan individuen (Van Knippenberg & Schippers, 2007). Uit eerder onderzoek is echter gebleken dat denkfouten ook op groepsniveau kunnen voorkomen. Zo zorgt 'groepsdenken' (in het Engels: *groupthink*; Janis, 1982) ervoor dat mensen zo snel mogelijk naar consensus streven zonder alternatieven te bespreken. De vraag is of toezichthouders (als ervaren beslissers) ook vatbaar zijn voor denkfouten tijdens groepsbesluitvorming en of bepaalde hulpmiddelen hen helpen om hiervoor te corrigeren.

Om dit te onderzoeken heb ik een besluitvormingstaak gebruikt waarbij interne toezichthouders en bestuurders van non-profit organisaties ($N_{groepen}$ = 47) de opdracht kregen om in een groep van drie personen het beste besluit te nemen. De beschikbare informatie was verdeeld onder de groepsleden (ook wel bekend als het *hidden-profile* paradigma; Stasser & Titus, 1985), welke moest worden uitgewisseld

en gecombineerd om tot de objectief beste oplossing te komen. Resultaten lieten zien dat slechts een vijfde van de groepen erin slaagde dit te doen en het beste besluit te nemen. Dit betekent dat de meeste groepen van ervaren toezichthouders en bestuurders er niet in geslaagd waren om individuele informatie met elkaar te delen die nodig was om tot het beste besluit te komen. In plaats daarvan bleek dat het groepsbesluit werd bepaald door de 'meerderheidsvoorkeur', oftewel de optie die door de meeste groepsleden als beste werd gezien voorafgaand aan de besluitvorming. Dit resultaat wijst op *confirmation bias* op groepsniveau. Tegelijkertijd bleek dat de meeste toezichthouders en bestuurders die aan dit onderzoek deelnamen behoorlijk tevreden waren met hun besluitvorming. De meeste deelnemers waren er zelf van overtuigd dat zij het beste besluit genomen hadden, terwijl dit vaak niet het geval was.

Daarnaast bleek dat het gebruiken van bepaalde populaire hulpmiddelen (namelijk een rolverdeling procedure of een beslismatrix) en het besteden van meer tijd aan de besluitvorming niet hielpen om de kwaliteit van groepsbesluiten te verhogen. Het gebruik van een hulpmiddel zorgde er alleen maar voor dat toezichthouders en bestuurders meer vertrouwen kregen in de kwaliteit en andere aspecten van de besluitvorming. Oftewel, het gebruik van populaire hulpmiddelen met als doel om groepsbesluitvorming te ondersteunen bleek de *objectieve kwaliteit* van besluitvorming niet te verbeteren, terwijl dit toezichthouders en bestuurders wel onterecht het *subjectieve gevoel* gaf dat de kwaliteit van besluitvorming er beter van werd. Deze bevindingen impliceren dat de toegevoegde waarde van groepsbesluitvorming niet wordt verzilverd als groepsleden blijven afgaan op hun individuele eerste voorkeur. Om ervoor te zorgen dat groepsleden hun perspectieven en informatie uitwisselen en vervolgens tot betere besluiten komen, is er bovendien meer nodig dan praktische hulpmiddelen. Het gebruik van een hulpmiddel kan er namelijk voor zorgen dat toezichthouders minder alert worden op mogelijk denkfouten in de besluitvorming omdat zij ervan uitgaan dat dit de besluitvorming verbetert, zelfs wanneer dat niet het geval is.

Reflectief en daadkrachtig toezicht

Van toezichthouders wordt verwacht dat zij op een zorgvuldige en weloverwogen manier tot hun besluiten komen. Tegelijkertijd moeten zij ook tijdig ingrijpen om maatschappelijke schade te voorkomen of verdere schade te beperken (Viñals et al., 2010). In de literatuur is er tot op heden weinig aandacht besteed aan het verhogen van daadkracht in groepsbesluitvorming en is er veel meer onderzoek gedaan naar het stimuleren van reflectie (bijvoorbeeld door het bevorderen van gemotiveerde informatieverwerking; De Dreu et al., 2008). Toezichthouders

krijgen echter vaker het verwijt dat zij niet tijdig optreden dan dat zij te weinig tijd besteden aan het bespreken van alternatieve strategieën. Daarom heb ik naast reflectie ook daadkracht onderzocht als een essentieel aspect van de besluitvorming van toezichthouders. 'Reflectie' heb ik hier gedefinieerd als de acties die een groep onderneemt om aannames en alternatieven te onderzoeken en 'daadkracht' als de acties die een groep onderneemt om vaart te houden in de besluitvorming en snel tot een besluit te komen. In de praktijk wordt vaak aangenomen dat deze twee gedragingen ten koste van elkaar gaan (bijvoorbeeld, snelheid vermindert zorgvuldigheid). Vanuit een sociaal psychologisch perspectief lijkt het echter juist goed mogelijk dat deze gedragingen samengaan op groepsniveau. Zo kunnen de verschillende leden van een team een andere rol aannemen, waarbij de één meer stuurt op het onderzoeken van verschillende perspectieven en de ander het proces bewaakt om ervoor te zorgen dat er tijdig een besluit wordt genomen.

Met een vragenlijstonderzoek onder externe en interne toezichthouders (N_{totaal} = 245) heb ik onderzocht of reflectie en daadkracht inderdaad hand in hand met elkaar gaan op groepsniveau. Voor dit doel heb ik een vragenlijst ontwikkeld die reflectie en daadkracht meet als twee essentiële dimensies van de gezamenlijke besluitvorming van toezichthouders. Hieruit bleek dat reflectie en daadkracht positief met elkaar gecorreleerd zijn, wat suggereert dat deze gedragingen samengaan op groepsniveau.

Om te onderzoeken hoe reflectie en daadkracht tegelijkertijd gestimuleerd kunnen worden, heb ik de rol van teamleiders onderzocht. Uit een tweede vragenlijstonderzoek onder toezichtteams (N = 44) bleek dat participatief leiderschapsgedrag – waarbij leidinggevenden teamleden betrekken bij de besluitvorming – bijdraagt aan een teamklimaat dat wordt gekarakteriseerd door 'coöperatief vertrouwen' en 'commitment aan de teamdoelen'. Dit type teamklimaat, waarbij teamleden het gevoel hebben dat zij openlijk hun mening kunnen delen en dat zij met elkaar dezelfde doelen nastreven, draagt op zijn beurt bij aan zowel meer reflectie als meer daadkracht. Tot slot bleek dat teams die vóór de coronacrisis een hoge mate van vertrouwen en commitment ervoeren, ook tijdens deze crisis (waarbij thuiswerken de norm was en overleg virtueel plaatsvond) beter in staat waren om reflectief en daadkrachtig te handelen. Door vertrouwen en commitment te creëren, kunnen participatieve leiders hun team dus stimuleren om reflectief en daadkrachtig besluiten te nemen. Dit heeft toegevoegde waarde die zelfs zichtbaar is in uitdagende omstandigheden, zoals het thuiswerken tijdens de coronacrisis, waarbij toezichthouders op afstand van

elkaar perspectieven en informatie moesten uitwisselen om tot een goed besluit te komen.

Conclusie

Dit proefschrift heeft aangetoond dat zelfs ervaren toezichthouders denkfouten vertonen in hun besluitvorming. Tegelijkertijd liet dit proefschrift zien dat toezichthouders zich hier zelf niet altijd bewust van zijn. Deze uitkomst repliceert sociaal psychologisch onderzoek dat is uitgevoerd onder studenten (zie bijvoorbeeld Schulz-Hardt & Mojzisch, 2012), wat suggereert dat dit type onderzoek mogelijk breder relevant is dan tot nu toe vaak wordt voorondersteld. Omdat toezichthouders zich weinig bewust lijken te zijn van hun eigen denkfouten, hebben zij mogelijk de kritische blik van anderen nodig om voor hun denkfouten te corrigeren. Uit dit proefschrift bleek echter dat denkfouten ook op groepsniveau voorkomen. Dit betekent dat het nemen van een besluit in een groep zonder verdere ondersteuning op zichzelf niet voldoende is om voor denkfouten te corrigeren en tot goede besluiten te komen. Helaas bleek ook dat het informeren over de risico's van denkfouten en het aanreiken van een praktisch hulpmiddel zoals een beslismatrix niet voldoende waren om toezichthouders bewuster te maken van hun denkfouten en de kwaliteit van hun besluitvorming te verbeteren. Deze bevindingen geven meer inzicht in de (in)effectiviteit van besluitvormingsstrategieën, waar in de wetenschappelijke literatuur tot op heden nog relatief weinig aandacht voor is geweest (Sohrab et al., 2015). Deze uitkomsten suggereren dat er meer nodig is om de besluitvorming van toezichthouders in goede banen te leiden dan het nemen van besluiten in groepen en het aanreiken van praktische hulpmiddelen.

Om de besluitvorming van toezichthouders te verbeteren, lijkt het creëren van de juiste randvoorwaarden essentieel. De bevindingen uit dit proefschrift suggereren dat leidinggevenden een belangrijke rol spelen in het ondersteunen van de besluitvorming van toezichthouders. Zo bleek dat participatief leiderschap bijdraagt aan een meer reflectieve *en* daadkrachtige besluitvorming. Dit is in lijn met eerder onderzoek dat uitwees dat leidinggevenden een sleutelrol spelen in het sturen van het gedrag en de besluitvorming van individuen (Kish-Gephart et al., 2010). Deze bevinding impliceert dat er niet verwacht kan worden van individuele toezichthouders dat zij automatisch op een goede manier tot hun besluiten komen, maar onderstreept het belang van ondersteuning vanuit de leiding. Het advies aan leidinggevenden is daarom om participatief leiderschapsgedrag

te vertonen door teamleden expliciet te vragen om alternatieven en ervoor te zorgen dat deze daadwerkelijk worden meegenomen in de besluitvorming. Op die manier kunnen zij een open sfeer creëren in hun team waarbij er ruimte is voor discussie en kunnen zij zorgen voor een gedeeld begrip van de doelen die het team nastreeft met de besluitvorming. Mogelijk kunnen ook andere actoren een rol spelen in het ondersteunen van de besluitvorming van toezichthouders. Zo kunnen organisatieadviseurs hieraan bijdragen door processen te ontwikkelen die helderheid scheppen over wanneer besluiten moeten worden voorgelegd aan hoger management.

Voor vervolgonderzoek naar de besluitvorming van toezichthouders stel ik voor om de zoektocht naar effectieve interventies te verbreden door strategieën te testen die ingrijpen op de sociale context, bijvoorbeeld door het stimuleren van participatief leiderschapsgedrag. Daarnaast stel ik voor om niet alleen als doel te stellen om reflectie te bevorderen met dergelijke besluitvormingsstrategieën, maar om ook in te zetten op het vergroten van daadkracht. Dit proefschrift heeft immers laten zien dat zowel reflectie als daadkracht belangrijk zijn voor toezichthouders om effectief op te treden. Hoewel in de praktijk vaak wordt aangenomen dat het onderzoeken van alternatieven ten koste gaat van de doortastendheid van toezichthouders, bleek uit dit proefschrift dat dit niet noodzakelijk het geval is en dat reflectie en daadkracht samen kunnen gaan op groepsniveau. De vragenlijst (de *Joint Decision-Making Questionnaire*) die ik in dit proefschrift heb ontwikkeld en getest, kan worden gebruikt in vervolgonderzoek om meer inzicht te krijgen in de mate waarin groepen of teams op een reflectieve en daadkrachtige manier besluiten nemen. Door de besluitvorming van toezichthouders te onderzoeken vanuit een vernieuwend sociaal psychologisch perspectief, hoop ik dat onderzoekers uit verschillende disciplines geïnspireerd zijn geraakt om toezicht te verkennen als interessant onderzoeksgebied. Bovenal hoop ik dat dit proefschrift toezichthouders ertoe aanzet om hun eigen besluitvorming vanuit deze systeembenadering onder de loep te nemen en te verbeteren, om uiteindelijk effectiever op te treden en maatschappelijke schade te voorkomen.

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About the author

Tessa Coffeng was born on April 26, 1994, in Gouda, the Netherlands. She completed secondary education in 2012, at St. Antoniuscollege in Gouda. Tessa obtained a bachelor's degree in Interdisciplinary Social Sciences in 2015 and a master's degree in Social and Organisational Psychology (Cum Laude) in 2016, both at Utrecht University. During her master's program, she joined a consultancy internship at Falke & Verbaan in Naarden-Vesting and simultaneously conducted her thesis research at the Federation of Dutch Trade Unions (FNV) in Woerden and Utrecht.

In September 2016, Tessa started her PhD research under the supervision of Prof. Elianne van Steenbergen, Prof. Naomi Ellemers, and Prof. Femke de Vries. She became part of the Organisational Behaviour Group chaired by Prof. Naomi Ellemers at Utrecht University. At the same time, Tessa started as a supervisory officer in the Behaviour & Culture team at the Expertise Centre of the Dutch Authority for the Financial Markets (AFM). At the AFM, she contributed to various behavioural projects on relevant themes for the financial markets next to her PhD project, such as error management, decision-making, suspicious transaction reporting, and artificial intelligence. Tessa's dual appointment was part of a formal collaboration between Utrecht University and the AFM, which aims to connect social and organisational psychological research with supervisory practice. This unique collaboration enabled Tessa to align her PhD research with supervisory practice.

In 2020, Tessa obtained a travel grant from the European Association of Social Psychology (EASP) to visit the Social Identity and Groups Network (SIGN) at the University of Queensland in Australia later that year. Unfortunately, this visit was postponed indefinitely due to travel restrictions that were caused by the COVID-19 pandemic. Nevertheless, Tessa collaborated virtually with Dr Nik Steffens from the University of Queensland, leading to a publication in the highly ranked journal *Regulation & Governance*. Alongside her work as a PhD candidate, Tessa participated in various extracurricular activities. Among other things, Tessa is an Editorial Board member at *Tijdschrift voor Toezicht* (i.e., Dutch Supervision Journal) since 2020, and is a member of Kurt Lewin Institute's Impact Committee since 2018. Moreover, she supervised master's students in successfully completing

their internship and thesis and gave several guest lectures at Utrecht University and the University of Groningen.

After the completion of her PhD project, Tessa will continue to work as a postdoctoral researcher and as a supervisory officer at the AFM and Utrecht University. Together with Prof. Elianne van Steenbergen, she will supervise a new PhD project on improving the effectiveness of supervision. In this way, Tessa aspires to further strengthen the bridge between social and organisational psychological research and supervisory practice.

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List of publications

Publications

Scientific publications

Coffeng, T., Van Steenbergen, E. F., De Vries, F., Steffens, N. K., & Ellemers, N. (2021). Reflective and decisive supervision: The role of participative leadership and team climate in joint decision-making. *Regulation & Governance.* Advance online publication. https://doi.org/10.1111/rego.12449

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➔ Nominated Best Scientist-Practitioner Paper at the European Association of Work and Organizational Psychology (EAWOP) congress 2019

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➔ Awarded the Vide Publication Prize 2019, and the Journal of Financial Regulation and Compliance – Emerald Literati 'Outstanding Paper' Award 2021

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➔ Selected as one of 68 best submissions from Dutch and Flemish universities

Professional publications

Coffeng, T., & Mein, A. G. (2021). De grote toezichtinterviewestafette – deel 6: de Nederlandse Zorgautoriteit. *Tijdschrift voor Toezicht*, *2021*(2), 89-92.

Christensen, C. A., Van Steenbergen, E. F., Coffeng, T., Wiegman, L. R., & Ellemers, N. (2018). Bouwen aan een gezonde organisatiecultuur in de financiële sector: Inspiratie voor compliance officers met lef. *Tijdschrift voor Compliance, 19*(3), 187-195.

Conference contributions

Scientific conference contributions [highlights]

Coffeng, T. 'Reflective and decisive supervision: The role of participative leadership and team climate in joint decision-making.' European Association of Work and Organizational Psychology (EAWOP) congress 2022, Glasgow, Scotland (UK) - cancelled due to COVID-19. [Oral talk]

Coffeng, T. 'On the difficulty to monitor and improve decision quality: A hidden-profile task among board members'. European Association of Social Psychology (EASP) general meeting 2021, Krakow, Poland - cancelled due to COVID-19. [Oral talk]

Coffeng, T. 'On the difficulty to monitor and improve decision quality: A hidden-profile experiment among supervisory and managing board members'. Werkgemeenschap Arbeids- & Organisatie Psychologie (WAOP) conferentie 2019, Amsterdam, the Netherlands. [Oral talk]

Coffeng, T. 'Should board members follow the majority? First preferences lead to biased decision-making'. European Association of Work and Organizational Psychology (EAWOP) congress 2019, Turin, Italy. [Oral talk]

Coffeng, T. 'Should board members follow the majority? First preferences lead to biased decision-making'. Associatie van Sociaal Psychologische Onderzoekers (ASPO) congres 2018, Nijmegen, the Netherlands. [Oral talk]

Coffeng, T. 'The art of making wise and timely decisions in supervision'. European Consortium for Political Research (ECPR) Standing Group on Regulatory Governance Biennial Conference 2018, Lausanne, Switzerland. [Oral talk]

Coffeng, T. 'How supervisory values are embedded in their decision-making climate'. Werkgemeenschap Arbeids- & Organisatie Psychologie (WAOP) conferentie 2017, Nijmegen, the Netherlands. [Oral talk]

Coffeng, T. 'The social expectation of objective supervision'. European Association of Social Psychology (EASP) preconference: Social minds, social brains 2017, Granada, Spain. [Oral talk]

Professional conference contributions [highlights]

Coffeng, T. 'Het waarom en hoe van groepsbesluitvorming: Is groepsbesluitvorming de oplossing voor het tegengaan van individuele biases?'. Dag van het Gedrag 2021, Fokker Terminal, The Hague, the Netherlands. [Online workshop]

Coffeng, T. 'De psychologie van ervaren beslissers'. The Social Animal 2021, TivoliVredenburg, Utrecht, the Netherlands. [Invited lecture; the online video can be found here: https://www.youtube.com/watch?v=OXoWhENi3qk]

Coffeng, T. & Van den Bergh, F. 'Toezicht op gedrag en cultuur'. KPMG RAAD bijeenkomst voor commissarissen 2019, Amstelveen, the Netherlands. [Invited lecture]

Coffeng, T. 'Het waarom en hoe van groepsbesluitvorming'. Rechtbank Amsterdam, 2019, Amsterdam, the Netherlands. [Invited lecture]

Coffeng, T. 'Objectieve besluitvorming in de boardroom'. Vereniging van Toezichthouders in Woningcorporaties (VTW) Congrestival 2018, Utrecht, the Netherlands. [Two workshops]

Coffeng, T., Beckers, J., Van Loon, M., & Thissen, J. 'Toezicht en gedrag: (Hoe) maken gedragswetenschappen ons toezicht effectiever?'. Groot Markttoezichthoudersberaad 2018, Amsterdam, the Netherlands. [Workshop]

Coffeng, T., & Van Steenbergen, E. F. 'Bias in Toezicht'. Autoriteit Consument & Markt (ACM) Lezingencyclus 2017, The Hague, the Netherlands. [Invited lecture]

Coffeng, T., & Bets, J. 'Bias in Toezicht'. Beroepsvereniging voor toezichthouders, handhavers, inspecteurs en evaluatoren (Vide) Jaarcongres 2017, Utrecht, the Netherlands. [Two workshops]

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Supervisory bodies, such as market authorities and inspectorates, are expected to make decisions independently and objectively. To what extent are supervisory officers—who work at these institutions—able to make decisions in an objective and unbiased manner? From a social psychological perspective, the current dissertation provides more insight into the decision-making of supervisory officers at the individual and group level. By conducting questionnaire studies and field experiments among diverse samples of supervisory officers, this dissertation examines the extent to which supervisory officers are aware of and affected by biases. Moreover, it tests communication strategies and decision-making tools that aim to improve the decision-making of supervisory officers. The findings of the current dissertation can help supervisory officers in taking a closer look at how they reach their decisions and taking the next steps in improving their decision-making. As a result, supervisory bodies may become more effective in making informed and timely decisions to prevent harm to society.

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